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(71) Applicant *(for all designated States except US)*: SYNGENTA PARTICIPATIONS AG [CH/CH]; Schwarzwaldallee 215, CH-4058 Basel (CH).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: PITTERNA, Thomas [AT/CH]; Syngenta Crop Protection AG, Schwarzwaldallee 21, CH-4058 Basel (CH). MAIENFISCH, Peter [CH/CH]; Syngenta Crop Protection AG, Schwarzwaldallee 215, CH-4058 Basel (CH). MURPHY KESSABI, Fiona [IE/CH]; Syngenta Crop Protection AG, Schwarzwaldallee 215, CH-4058 Basel (CH). CASSAYRE, Jérôme [FR/CH]; Syngenta Crop Protection AG, Schwarzwaldallee 215, CH-4058 Basel (CH). QUARANTA, Laura [IT/CH]; Syngenta Crop Protection AG, Schwarzwaldallee 215, CH-4058 Basel (CH). JUNG, Pierre [FR/CH]; Syngenta Crop Protection AG, Schwarzwaldallee 215, CH-4058 Basel (CH).

(74) Common Representative: SYNGENTA PARTICIPATIONS AG; Intellectual Property, P.O. Box, CH-4002 Basel (CH).

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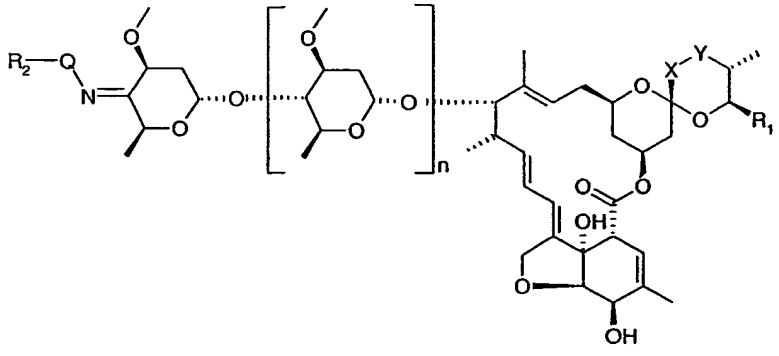
(54) Title: AVERMECTIN- AND AVERMECTIN MONOSACCHARIDE DERIVATIVES SUBSTITUTED IN THE 4"- OR 4'-POSITION HAVING PESTICIDAL PROPERTIES



(57) Abstract: Disclosed are compounds of the formulain which nis0orl; X-Y is -CH=CH- or -CH_2-CH_2-; Z is -C(=O)-, -C(=S)- or -SO_2-; R_1 is C_1-C_{12}alkyl, C_3-C_8cycloalkyl or C_2-C_{12}alkenyl; and R_2 is R_3-Z-, R_3-O-Z-, R_4 or -Z-N(R_6)(R_7); Q is O or -N-R_5; R_3 and R_4 are for example H, C_1C_{12}alkyl, C_2-C_{12}alkenyl, C_2-C_{12}alkynyl, C_3-C_{12}zcycloalkyl, C_5-C_{12}cycloalkenyl, aryl or heterocyclyl; R_5 is for example H, C_1-C_8alkyl, hydroxy-C_1-C_8alkyl, C_3-C_8cycloalkyl, C_2-C_8alkenyl, C_2-C_8alkynyl, phenyl or benzyl; R_6 and R_7 are for example, H, unsubstituted or mono- to pentasubstituted C_1-C_{12}alkyl, unsubstituted or mono- to pentasubstituted C_2-C_{12}alkenyl or, if appropriate, an E/Z isomer, E/Z isomer mixture and/or tautomer thereof, in each case in free form or in salt form, are useful as pesticides.

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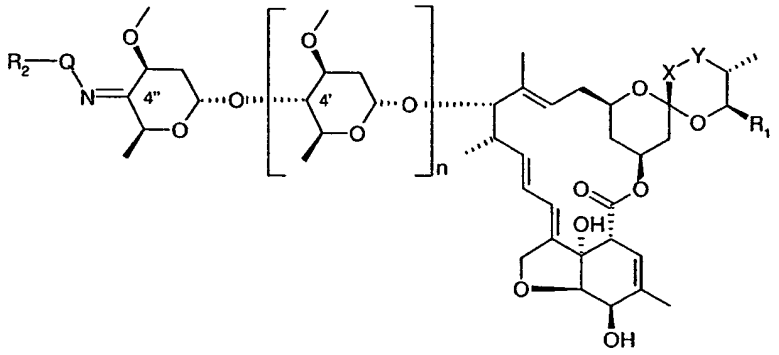
Avermectin- and avermectin monosaccharide derivatives substituted in the 4"- or 4'-position having pesticidal properties

The invention provides (1) a compound of the formula (I)



in which

n is 0 or 1;

X-Y is -CH=CH- or -CH_2-CH_2-;

R_1 is C_1-C_{12}alkyl, C_3-C_8cycloalkyl or C_2-C_{12}alkenyl; and

R_2 is R_3-Z-, R_3-O-Z-, R_4 or -Z-N(R_6)(R_7);

Z is -C(=O)-, -C(=S)- or -SO_2-;

Q is O or -N-R_5;

R_3 and R_4 are H, C_1-C_{12}alkyl, C_2-C_{12}alkenyl, C_2-C_{12}alkynyl, C_3-C_{12}cycloalkyl, C_5-C_{12}cycloalkenyl, aryl or heterocyclyl, wherein the alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl and heterocyclyl radicals may be - depending on the substitution possibilities - unsubstituted or mono- to pentasubstituted; either

R_5 is H, C_1-C_8alkyl, hydroxy-C_1-C_8alkyl, C_3-C_8cycloalkyl, C_2-C_8alkenyl, C_2-C_8alkynyl, phenyl, benzyl, -C(=O)-R_9, or -CH_2-C(=O)-R_9; or,

when Q is NR_5 and R_2 is R_4,

R_4 and R_5 together are a three- to seven-membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted; or a three- to seven-membered alkylene- or alkenylene-bridge, which are unsubstituted or mono- to tri-substituted, and in which one or two of the methylene groups of the bridge are replaced by O, NR_8, S, S(=O) or SO_2;

R_6 and R_7 are, independently from each other, H, unsubstituted or mono- to pentasubstituted C_1-C_{12}alkyl, unsubstituted or mono- to pentasubstituted C_2-C_{12}alkenyl, unsubstituted or mono- to pentasubstituted C_2-C_{12}alkynyl, unsubstituted or mono- to pentasubstituted C_3-C_{12}-cycloalkyl, unsubstituted or mono- to pentasubstituted C_5-C_{12}cycloalkenyl, unsubstituted or mono- to pentasubstituted aryl, or unsubstituted or mono- to pentasubstituted heterocyclyl; or

R_6 and R_7 together are a three- to seven-membered alkylene- or alkenylene-bridge, which are unsubstituted or mono- to tri-substituted; or a three- to seven-membered alkylene- or alkenylene-bridge, which are unsubstituted or mono- to tri-substituted, and in which one or two of the methylene groups of the bridge are replaced by O, NR_8, S, S(=O) or SO_2;

R_8 is H, C_1-C_8alkyl, hydroxy-C_1-C_8alkyl, C_3-C_8cycloalkyl, C_2-C_8alkenyl, C_2-C_8alkynyl, phenyl, benzyl, -C(=O)R_9 or -CH_2-C(=O)-R_9;

in which the substituents of the alkyl, alkenyl, alkynyl, alkylene, alkenylene, cycloalkyl, cycloalkenyl, aryl and heterocyclyl radicals mentioned under R_2, R_3, R_4, R_5, R_6, R_7 and R_8 are selected from the group consisting of OH, =O, SH, =S, -N_3, halogen, halo-C_1-C_2alkyl, CN, SCN, NO_2, trialkylsilyl, C_1-C_{12}alkyl, C_1-C_{12}-haloalkyl, C_2-C_8alkenyl, C_2-C_6haloalkenyl, C_2-C_8alkynyl, C_3-C_8cycloalkyl that is unsubstituted or substituted by one to three methyl groups, norbornylenyl, C_3-C_8halocycloalkyl, C_1-C_{12}alkoxy, C_1-C_{12}alkoxy-C_1-C_{12}alkoxy, C_1-C_{12}haloalkoxy, C_3-C_8cycloalkoxy, C_1-C_{12}alkylthio, C_3-C_8cycloalkylthio, C_1-C_{12}-haloalkylthio, C_1-C_{12}alkylsulfinyl, C_3-C_8cycloalkylsulfinyl, C_1-C_{12}haloalkylsulfinyl, C_3-C_8halocycloalkylsulfinyl, C_1-C_{12}alkylsulfonyl, C_3-C_8cycloalkylsulfonyl, C_1-C_{12}haloalkylsulfonyl, C_3-C_8halocycloalkylsulfonyl, -$N(R_{12})_2$ wherein the two R_{12} are independent of each other, -C(=O)R_9, -O-C(=O)R_{10}, -NHC(=O)R_9, -S-C(=S)R_{10}, -P(=O)(OC_1-C_6alkyl)$_2$, -S(=O)$_2R_{13}$, -NH-S(=O)$_2R_{13}$, -OC(=O)-C_1-C_6alkyl-S(=O)$_2R_{13}$, aryl, benzyl, heterocyclyl, aryloxy, benzyloxy, heterocyclyloxy, arylthio, benzylthio and heterocyclylthio; wherein the aryl, heterocyclyl, aryloxy, benzyloxy, heterocyclyloxy, arylthio, benzylthio or heterocyclylthio radicals are unsubstituted or, depending on the possibilities of substitution on the ring, mono- to pentasubstituted by substituents selected from the group consisting of OH, halogen, CN, NO_2, C_1-C_{12}alkyl, C_3-C_8cycloalkyl, C_1-C_{12}haloalkyl, C_1-C_{12}alkoxy, C_1-C_{12}haloalkoxy, C_1-C_{12}alkylthio, C_1-C_{12}haloalkylthio, C_1-C_6alkoxy-C_1-C_6alkyl, dimethylamino-C_1-C_6alkoxy, C_2-C_8alkenyl, C_2-C_8alkynyl, phenyl, phenoxy, phenyl-C_1-C_6alkyl, methylenedioxy, -C(=O)R_9, -O-C(=O)-R_{10}, -NH-C(=O)R_{10}, -$N(R_{12})_2$ wherein the two R_{12} are independent of each other, C_1-C_6alkylsulfinyl, C_3-C_8cycloalkylsulfinyl, C_1-C_6haloalkylsulfinyl, C_3-C_8halocycloalkylsulfinyl,

C_1-C_6alkylsulfonyl, C_3-C_8cycloalkylsulfonyl, C_1-C_6haloalkylsulfonyl and C_3-C_8halocycloalkyl-sulfonyl;

R_9 is H, OH, SH, -N(R_{12})$_2$ wherein the two R_{12} are independent of each other, C_1-C_{24}alkyl, C_2-C_{12}alkenyl, C_1-C_8hydroxyalkyl, C_1-C_{12}haloalkyl, C_1-C_{12}alkoxy, C_1-C_{12}halo-alkoxy, C_1-C_6alkoxy-C_1-C_6alkyl, C_1-C_6alkoxy-C_1-C_6alkoxy, C_1-C_6alkoxy-C_1-C_6alkoxy-C_1-C_6alkyl, C_1-C_{12}alkylthio, C_2-C_8alkenyloxy, C_3-C_8alkynyloxy, -NH-C_1-C_6alkyl-C(=O)-R_{11}, -N(C_1-C_6alkyl)-C_1-C_6alkyl-C(=O)-R_{11}, -O-C_1-C_2alkyl-C(=O)R_{11}, -C_1-C_6alkyl-S(=O)$_2R_{13}$, aryl, benzyl, heterocyclyl, aryloxy, benzyloxy, heterocyclyloxy; or aryl, benzyl, heterocyclyl, aryl-oxy, benzyloxy or heterocyclyloxy, which are unsubstituted or mono- to trisubstituted in the ring independently of one another by halogen, nitro, C_1-C_6alkyl, C_1-C_6alkoxy, C_1-C_6haloalkyl or C_1-C_6haloalkoxy;

R_{10} is H, C_1-C_{24}alkyl, C_1-C_{12}haloalkyl, C_1-C_{12}hydroxyalkyl, C_2-C_8alkenyl, C_2-C_8alkynyl, C_1-C_6alkoxy-C_1-C_6alkyl, -N(R_{12})$_2$ wherein the two R_{12} are independent of each other, -C_1-C_6alkyl-C(=O)R_{12}, -C_1-C_6alkyl-S(=O)$_2R_{13}$, aryl, benzyl, heterocyclyl; or aryl, benzyl or heterocyclyl which, depending on the possibilities of substitution on the ring, are mono- to trisubstituted by substituents selected from the group consisting of OH, halogen, CN, NO_2, C_1-C_{12}alkyl, C_1-C_{12}haloalkyl, C_1-C_{12}alkoxy, C_1-C_{12}haloalkoxy, C_1-C_{12}alkylthio and C_1-C_{12}halo-alkylthio;

R_{11} is H, OH, C_1-C_{24}alkyl that is optionally subsituted with OH, or -S(=O)$_2$-C_1-C_6alkyl, C_2-C_{12}alkenyl, C_2-C_{12}alkynyl, C_1-C_{12}alkoxy, C_1-C_6 alkoxy-C_1-C_6alkyl, C_1-C_6alkoxy-C_1-C_6alkoxy, C_2-C_8alkenyloxy, aryl, aryloxy, benzyloxy, heterocyclyl, heterocyclyloxy or -N(R_{12})$_2$, wherein the two R_{12} are independent of each other;

R_{12} H, C_1-C_6alkyl, which is optionally substituted with one to five substituents selected from the group consisting of OH, =O, halogen, C_1-C_6alkoxy, hydroxy and cyano; C_1-C_8-cyclo-alkyl, aryl, benzyl, heteroaryl; or aryl, benzyl or heteroaryl, which, depending on the possi-bilities of substitution on the ring, are mono- to trisubstituted by substituents selected from the group consisting of OH, halogen, CN, NO_2, C_1-C_{12}alkyl, C_1-C_{12}haloalkyl, C_1-C_{12}alkoxy, C_1-C_{12}haloalkoxy, C_1-C_{12}alkylthio and C_1-C_{12}haloalkylthio; or the two R_{12} together are a three- to seven-membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted; or a three- to seven-membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted, and in which one of the methylene groups of the bridge is replaced by O, NR_8, S, S(=O) or SO_2;

R_{13} is H, C_1-C_6alkyl that is optionally substituted with one to five substituents selected from the group consisting of halogen, OH, =O, C_1-C_6alkoxy, hydroxy and cyano; aryl, benzyl, heteroaryl; or aryl, benzyl or heteroaryl, which, depending on the possibilities of substitution on the ring, are mono- to trisubstituted by substituents selected from the group consisting of OH, =O, halogen, CN, NO_2, C_1-C_{12}alkyl, C_1-C_{12}haloalkyl, C_1-C_{12}alkoxy, C_1-C_{12}haloalkoxy, C_1-C_{12}alkylthio and C_1-C_{12}haloalkylthio;

or, if appropriate, an E/Z isomer, E/Z isomer mixture and/or tautomer thereof, in each case in free form or in salt form;

a process for preparing these compounds, their isomers and tautomers and the use of these compounds, their isomers and tautomers; pesticidal compositions whose active compound is selected from these compounds and their tautomers; intermediates for the preparation of the said compounds of the formula (I), methods for the preparation of the compounds of the formula (I), and a method for controlling pests using these compositions.

The literature proposes certain macrolide compounds for controlling pests. However, the biological properties of these known compounds are not entirely satisfactory, and, as a consequence, there is still a need for providing further compounds having pesticidal properties, in particular for the control of insects and representatives of the order Acarina. According to the invention, this object is achieved by providing the present compounds of the formula (I).

The compounds claimed according to the invention are derivatives of Avermectin. Avermectins are known to the person skilled in the art. They are a group of structurally closely related pesticidally active compounds which are obtained by fermenting a strain of the microorganism Streptomyces avermitilis. Derivatives of Avermectins can be obtained by conventional chemical syntheses.

The Avermectins which can be obtained from Streptomyces avermitilis are referred to as A1a, A1b, A2a, A2b, B1a, B1b, B2a and B2b. The compounds referred to as "A" and "B" have a methoxy radical and an OH group, respectively, in the 5-position. The "a" series and the "b" series are compounds in which the substituent R_1 (in position 25) is a sec-butyl radical and an isopropyl radical, respectively. The number 1 in the name of the compounds means that atoms 22 and 23 are linked by double bonds; the number 2 means that they are linked by a single bond and that the C atom 23 carries an OH group. The above nomenclature is adhered to in the description of the present invention to denote the specific structure type in the not naturally occurring Avermectin derivatives according to the invention

which corresponds to the naturally occurring Avermectin. What is for instance claimed according to the invention are derivatives of compounds of the B1 series, in particular mixtures of derivatives of Avermectin B1, especially B1a and B1b, along with derivatives having a single bond between carbon atoms 22 and 23, and derivatives having other substituents in the 25-position, as well as the corresponding monosaccharides.

Some of the compounds of the formula (I) can be present as tautomers. Accordingly, hereinabove and hereinbelow, the compounds of the formula (I) are, if appropriate, also to be understood as including the corresponding tautomers, even if the latter are not specifically mentioned in each case.

The compounds of formula (I) and, where applicable, their tautomers can form salts, for example acid addition salts. These acid addition salts are formed, for example, with strong inorganic acids, such as mineral acids, for example sulfuric acid, a phosphoric acid or a hydrohalic acid, with strong organic carboxylic acids, such as unsustituted or substituted, for example halo-substituted, C_1-C_4alkanecarboxylic acids, for example acetic acid, unsaturated or saturated dicarboxylic acids, for example oxalic acid, malonic acid, maleic acid, fumaric acid or phthalic acid, hydroxycarboxylic acids, for example ascorbic acid, lactic acid, malic acid, tartaric acid or citric acid, or benzoic acid, or with organic sulfonic acids, such as unsubstituted or substituted, for example halo-substituted, C_1-C_4alkane- or aryl-sulfonic acids, for example methane- or p-toluene-sulfonic acid. Compounds of formula (I) that have at least one acidic group can furthermore form salts with bases. Suitable salts with bases are, for example, metal salts, such as alkali metal salts or alkaline earth metal salts, for example sodium, potassium or magnesium salts, or salts with ammonia or with an organic amine, such as morpholine, piperidine, pyrrolidine, a mono-, di- or tri-lower alkylamine, for example ethylamine, diethylamine, triethylamine or dimethylpropylamine, or a mono-, di- or trihydroxy-lower alkylamine, for example mono-, di- or tri-ethanolamine. Corresponding internal salts may also be formed where appropriate. The free form is preferred. Among the salts of the compounds of formula (I), the agrochemically advantageous salts are preferred. Hereinbefore and hereinafter, any reference to the free compounds of formula (I) or their salts is to be understood as including, where appropriate, also the corresponding salts or the free compounds of formula (I), respectively. The same applies to tautomers of compounds of formula (I) and salts thereof.

Unless defined otherwise, the general terms used hereinabove and hereinbelow have the meanings given below.

Unless defined otherwise, carbon-containing groups and compounds each contain from 1 up to and including 6, preferably from 1 up to and including 4, especially 1 or 2, carbon atoms.

Halogen- as a group per se and also as a structural element of other groups and compounds, such as haloalkyl, haloalkoxy and haloalkylthio - is fluorine, chlorine, bromine or iodine, in particular fluorine, chlorine or bromine, especially fluorine or chlorine.

Alkyl - as a group per se and also as a structural element of other groups and compounds, such as haloalkyl, alkoxy and alkylthio - is, in each case taking into account the number of carbon atoms contained in each case in the group or compound in question, either straight-chain, i.e. methyl, ethyl, propyl, butyl, pentyl, hexyl, heptyl or octyl, or branched, for example isopropyl, isobutyl, sec-butyl, tert-butyl, isopentyl, neopentyl or isohexyl.

Cycloalkyl - as a group per se and also as a structural element of other groups and compounds, such as, for example, of halocycloalkyl, cycloalkoxy and cycloalkylthio - is, in each case taking into account the number of carbon atoms contained in each case in the group or compound in question, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cycloheptyl or cyclooctyl.

Alkynyl – as a group per se and also as a structural element of other groups and compounds - is, in each case taking into account the number of carbon atoms and conjugated or isolated double bonds contained in the group or compound in question, either straight-chain, for example ethynyl, propargyl, 2-butynyl, 3-pentynyl, 1-hexynyl, 1-heptynyl, 3-hexen-1-ynyl or 1,5-heptadien-3-ynyl, or branched, for example 3-methylbut-1-ynyl, 4-ethylpent-1-ynyl, 4-methylhex-2-ynyl or 2-methylhept-3-ynyl. Preference is given to groups $-CH_2-C_2-C_{11}$alkynyl, in particular $-CH_2-C_2-C_5$alkynyl, especially $-CH_2-C_2-C_3$alkynyl.

Alkynyl – as a group per se and also as a structural element of other groups and compounds - is, in each case taking into account the number of carbon atoms and conjugated or isolated double bonds contained in the group or compound in question, either straight-chain, for example ethynyl, propargyl, 2-butynyl, 3-pentynyl, 1-hexynyl, 1-heptynyl, 3-hexen-1-ynyl or 1,5-heptadien-3-ynyl, or branched, for example 3-methylbut-1-ynyl, 4-ethylpent-1-ynyl, 4-methylhex-2-ynyl or 2-methylhept-3-ynyl. Preference is given to the group $-CH_2-C_2-C_{11}$alkynyl, in particular $-CH_2-C_2-C_5$alkynyl, especially $-CH_2-C_2-C_3$alkynyl.

Alkylene and alkenylene are straight-chain or branched bridge members; they are in particular $-(CH_2)_3-$, $-(CH_2)_4-$, $-(CH_2)_5-$, $-CH_2(CH_3)CH_2-CH_2-$, $-CH_2C(CH_3)_2-CH_2-$, $-CH_2-CH=CH-$, $-CH_2-CH=CH-CH_2$ or $-CH_2-CH=CH-CH_2-CH_2-$.

Halogen-substituted carbon-containing groups and compounds, such as, for example, halogen-substituted alkyl, alkenyl, alkynyl, cycloalkyl, alkoxy or alkylthio, can be partially halogenated or perhalogenated, where in the case of polyhalogenation the halogen substituents can be identical or different. Examples of haloalkyl - as a group per se and also as a structural element of other groups and compounds, such as haloalkoxy or haloalkylthio - are methyl which is mono- to trisubstituted by fluorine, chlorine and/or bromine, such as CHF_2 or CF_3; ethyl which is mono- to pentasubstituted by fluorine, chlorine and/or bromine, such as CH_2CF_3, CF_2CF_3, CF_2CCl_3, CF_2CHCl_2, CF_2CHF_2, CF_2CFCl_2, CF_2CHBr_2, CF_2CHClF, CF_2CHBrF or CClFCHClF; propyl or isopropyl which is mono- to heptasubstituted by fluorine, chlorine and/or bromine, such as $CH_2CHBrCH_2Br$, CF_2CHFCF_3, $CH_2CF_2CF_3$, $CF(CF_3)_2$ or $CH(CF_3)_2$; butyl or one of its isomers, mono- to nonasubstituted by fluorine, chlorine and/or bromine, such as $CF(CF_3)CHFCF_3$ or $CH_2(CF_2)_2CF_3$; pentyl or one of its isomers, mono- to undecasubstituted by fluorine, chlorine and/or bromine, such as $CF(CF_3)(CHF_2)CF_3$ or $CH_2(CF_2)_3CF_3$; and hexyl or one of its isomers, mono- to tridecasubstituted by fluorine, chlorine and/or bromine, such as $(CH_2)_4CHBrCH_2Br$, $CF_2(CHF)_4CF_3$, $CH_2(CF_2)_4CF_3$ or $C(CF_3)_2(CHF)_2CF_3$.

Aryl is in particular phenyl, naphthyl, anthracenyl, phenanthrenyl, perylenyl or fluorenyl, preferably phenyl.

Heterocyclyl is understood as being a three- to seven-membered monocyclic ring, which may be saturated or unsaturated, and that contains from one to three hetero atoms selected from the group consisting of N, O and S, especially N and S; or a bicyclic ring-system having from 8 to 14 ring atoms, which may be saturated or unsaturated, and that may contain either in only one ring or in both rings independently of one another, one or two hetero atoms selected from N, O and S.

Heterocyclyl is in particular piperidinyl, piperazinyl, oxiranyl, morpholinyl, thiomorpholinyl, pyridyl, N-oxidopyridinio, pyrimidyl, pyrazinyl, s-triazinyl, 1,2,4-triazinyl, thienyl, furanyl, dihydrofuranyl, tetrahydrofuranyl, pyranyl, tetrahydropyranyl, pyrrolyl, pyrrolinyl, pyrrolidinyl, pyrazolyl, imidazolyl, imidazolinyl, thiazolyl, isothiazolyl, triazolyl, oxazolyl, thiadiazolyl, thiazolinyl, thiazolidinyl, oxadiazolyl, phthalimidoyl, benzothienyl, quinolinyl, quinoxalinyl, benzofuranyl, benzimidazolyl, benzpyrrolyl, benzthiazolyl, indolinyl, isoindolinyl, cumarinyl, inda-

zolyl, benzothiophenyl, benzofuranyl, pteridinyl or purinyl, which are preferably attached via a C atom; thienyl, benzofuranyl, benzothiazolyl, tetrahydropyranyl or indolyl is preferred; in particular pyridyl or thiazolyl. The said heterocyclyl radicals may preferrably be unsubstituted or -- depending on the substitution possibilities on the ring system - substituted by 1 to 3 substituents selected from the group consisting of halogen, =O, -OH, =S, SH, nitro, C_1-C_6alkyl, C_1-C_6hydroxyalkyl, C_1-C_6alkoxy, C_1-C_6haloalkyl, C_1-C_6haloalkoxy, phenyl, benzyl, -C(=O)-R_{10} and -CH_2-C(=O)-R_{10}, wherein R_{10} is as defined for formula (I) above.

In the context of the present invention, preference is given to

(2) compounds according to group (1) of the formula (I) in which R_1 is isopropyl or sec-butyl, preferably to those in which a mixture of the isopropyl and the sec-butyl derivative is present;

(3) compounds according to group (1) of the formula (I) in which R_1 is cyclohexyl;

(4) compounds according to group (1) of the formula (I) in which R_1 is 1-methyl-butyl;

(5) compounds according to one of groups (1) to (4) of the formula (I) in which n is 1;

(6) compounds according to one of groups (1) to (4) of the formula (I) in which n is 0;

(7) compounds according to one of groups (1) to (6) of the formula (I) in which X-Y is -CH=CH-;

(8) compounds according to one of groups (1) to (6) of the formula (I) in which X-Y is -CH_2CH_2-;

(9) compounds according to one of groups (1) to (8) of the formula (I), in which Q is O;

(10) compounds according to one of groups (1) to (8) of the formula (I), in which Q is -N-R_5;

(11) compounds according to one of groups (1) to (10) of the formula (I) in which R_2 is R_3-O-Z-;

(12) compounds according to one of groups (1) to (10) of the formula (I) in which R_2 is R_3-Z-;

(13) compounds according to one of groups (1) to (10) of the formula (I) in which R_2 is R_4;

(14) compounds according to one of groups (1) to (13) and of the formula (I), in which Z is -C(=O)-;

(15) compounds according to one of groups (1) to (13) of the formula (I), in which Z is -C(=S)-;

(16) compounds according to one of groups (1) to (13) of the formula (I), in which Z is $-SO_2-$;

(17) compounds according to anyone of groups (1) to (8) and (10) to (16) of the formula (I), in which Q is NR_5 and R_5 is H;

(18) compounds according to anyone of groups (1) to (8) and (10) to (16) of the formula (I), in which Q is NR_5 and R_5 is C_1-C_8alkyl;

(19) compounds according to anyone of groups (1) to (8) and (10) to (16) of the formula (I), in which Q is NR_5 and R_5 is hydroxy-C_1-C_8alkyl;

(20) compounds according to anyone of groups (1) to (8) and (10) to (16) of the formula (I), in which Q is NR_5 and R_5 is C_3-C_8cycloalkyl;

(21) compounds according to anyone of groups (1) to (8) and (10) to (16) of the formula (I), in which Q is NR_5 and R_5 is C_2-C_8alkenyl;

(22) compounds according to anyone of groups (1) to (8) and (10) to (16) of the formula (I), in which Q is NR_5 and R_5 is C_2-C_8alkynyl;

(23) compounds according to anyone of groups (1) to (8) and (10) to (16) of the formula (I), in which Q is NR_5 and R_5 is phenyl;

(24) compounds according to anyone of groups (1) to (8) and (10) to (16) of the formula (I), in which Q is NR_5 and R_5 is benzyl;

(25) compounds according to anyone of groups (1) to (8) and (10) to (16) of the formula (I), in which Q is NR_5 and R_5 is $-C(=O)-R_9$;

(26) compounds according to anyone of groups (1) to (8) and (10) to (16) of the formula (I), in which Q is NR_5 and R_5 is $-CH_2-C(=O)-R_9$;

(27) compounds according to anyone of groups (1) to (12) of the formula (I), in which R_3 is unsubstituted or mono- to pentasubstituted C_2-C_{12}alkenyl;

(28) compounds according to anyone of groups (1) to (12) of the formula (I), in which R_3 is unsubstituted or mono- to pentasubstituted C_2-C_{12}alkynyl;

(29) compounds according to anyone of groups (1) to (12) of the formula (I), in which R_3 is unsubstituted or mono- to pentasubstituted C_3-C_{12}-cycloalkyl;

(30) compounds according to anyone of groups (1) to (12) of the formula (I), in which R_3 is unsubstituted or mono- to pentasubstituted C_5-C_{12}cycloalkenyl;

(31) compounds according to anyone of groups (1) to (12) of the formula (I), in which R_3 is unsubstituted or mono- to pentasubstituted aryl;

(32) compounds according to anyone of groups (1) to (12) of the formula (I), in which R_3 is unsubstituted or mono- to pentasubstituted heterocyclyl;

(33) compounds according to anyone of groups (1) to (10) and (14) to (26) of the formula (I), in which R_2 is -Z-N(R_6)(R_7);

(34) compounds according to anyone of groups (1) to (10), (14) to (26) and (33) of the formula (I), in which R_6 and R_7 are independenty of each other H or C_1-C_{12}alkyl;

(35) compounds according to group (33) of the formula (I), in which R_7 is H;

(36) compounds according to group (33) of the formula (I), in which R_7 is unsubstituted or mono- to pentasubstituted C_1-C_{12}alkyl;

(37) compounds according to of group (33) of the formula (I), in which R_7 is unsubstituted or mono- to pentasubstituted C_2-C_{12}alkenyl;

(38) compounds according to group (33) of the formula (I), in which R_7 is unsubstituted or mono- to pentasubstituted C_2-C_{12}alkynyl;

(39) compounds according to of groups (33) of the formula (I), in which R_7 is unsubstituted or mono- to pentasubstituted C_3-C_{12}-cycloalkyl;

(40) compounds according to of group (33) of the formula (I), in which R_7 is unsubstituted or mono- to pentasubstituted C_5-C_{12}-cycloalkenyl;

(41) compounds according to of group (33) of the formula (I), in which R_7 is unsubstituted or mono- to pentasubstituted aryl;

(42) compounds according to of group (33) of the formula (I), in which R_7 is unsubstituted or mono- to pentasubstituted heterocyclyl;

(43) compounds according to group (33) of the formula (I), in which R_6 and R_7 together are a three membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to trisubstituted;

(44) compounds according to group (33) of the formula (I), in which R_6 and R_7 together are a four membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted;

(45) compounds according to group (33) of the formula (I), in which R_6 and R_7 together are a five membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted;

(46) compounds according to to group (33) of the formula (I), in which R_6 and R_7 together are a six membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted;

(47) compounds according to to group (33) of the formula (I), in which R_6 and R_7 together are a seven-membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted;

(48) compounds according to to group (33) of the formula (I), in which R_6 and R_7 together are a three- to seven-membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted, and in which one of the methylene groups of the bridge is replaced by O;

(49) compounds according to one of to group (33) of the formula (I), in which and R_6 and R_7 together are a three- to seven-membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted, and in which one of the methylene groups of the bridge is replaced by NR_8;

(50) compounds according to to group (33) of the formula (I), in which R_6 and R_7 together are a three- to seven-membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted, and in which one of the methylene groups of the bridge is replaced by S;

(51) compounds according to to group (33) of the formula (I), in which R_6 and R_7 together are a three- to seven-membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted, and in which one of the methylene groups of the bridge is replaced by S(=O);

(52) compounds according to to group (33) of the formula (I), in which R_6 and R_7 together are a three- to seven-membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted, and in which one of the methylene groups of the bridge is replaced by SO_2;

(53) compounds according to group (1) to (10) and (13) of the formula (I), in which Q is NR_5, R_2 is R_4 and R_4 and R_5 together are a three membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted;

(54) compounds according to group (1) to (10) and (13) of the formula (I), in which which Q is NR_5, R_2 is R_4 and R_4 and R_5 together are a four membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted;

(55) compounds according to one of groups (1) to (10) and (13) of the formula (I), in which Q is NR_5, R_2 is R_4 and R_4 and R_5 together are a five membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted;

(56) compounds according to one of groups (1) to (10) and (13) of the formula (I), in which Q is NR_5, R_2 is R_4 and R_4 and R_5 together are a six membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted;

(57) compounds according to one of groups (1) to (10) and (13) of the formula (I), in which Q is NR_5, R_2 is R_4 and R_4 and R_5 together are a seven-membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted;

(58) compounds according to one of groups (1) to (10) and (13) of the formula (I), in which Q is NR_5, R_2 is R_4 and R_4 and R_5 together are a three- to seven-membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted, and in which one of the methylene groups of the bridge is replaced by O;

(59) compounds according to one of groups (1) to (10) and (13) of the formula (I), in which Q is NR_5, R_2 is R_4 and R_4 and R_5 together are a three- to seven-membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted, and in which one of the methylene groups of the bridge is replaced by NR_8;

(60) compounds according to one of groups (1) to (10) and (13) of the formula (I), in which Q is NR_5, R_2 is R_4 and R_4 and R_5 together are a three- to seven-membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted, and in which one of the methylene groups of the bridge is replaced by S;

(61) compounds according to one of groups (1) to (10) and (13) of the formula (I), in which Q is NR_5, R_2 is R_4 and R_4 and R_5 together are a three- to seven-membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted, and in which one of the methylene groups of the bridge is replaced by S(=O);

(62) compounds according to one of groups (1) to (10) and (13) of the formula (I), in which Q is NR_5, R_2 is R_4 and R_4 and R_5 together are a three- to seven-membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted, and in which one of the methylene groups of the bridge is replaced by SO_2;

(63) compounds according to anyone of groups (1) to (10), (49) or (59) of the formula (I), in which R_8 is H;

(64) compounds according to anyone of groups (1) to (10), (49) or (59) of the formula (I), in which R_8 is C_1-C_8alkyl;

(65) compounds according to anyone of groups (1) to (10), (49) or (59) of the formula (I), in which R_8 is hydroxy-C_1-C_8alkyl;

(66) compounds according to anyone of groups (1) to (10), (49) or (59) of the formula (I), in which R_8 is C_3-C_8cycloalkyl;

(67) compounds according to anyone of groups (1) to (10), (49) or (59) of the formula (I), in which R_8 is C_2-C_8alkenyl;

(68) compounds according to anyone of groups (1) to (10), (49) or (59) of the formula (I), in which R_8 is C_2-C_8alkynyl;

(69) compounds according to anyone of groups (1) to (10), (49) or (59) of the formula (I), in which R_8 is phenyl;

(70) compounds according to anyone of groups (1) to (10), (49) or (59) of the formula (I), in which R_8 is benzyl;

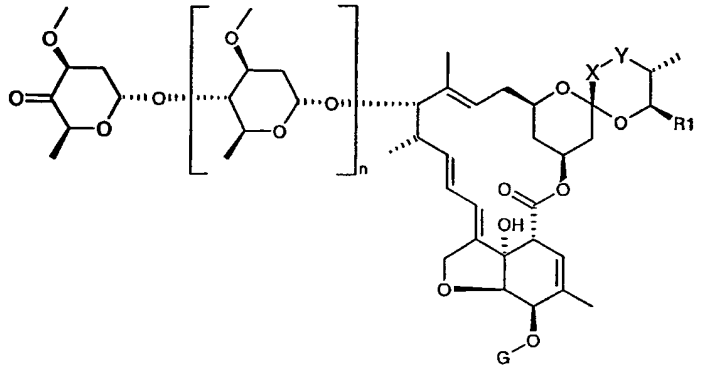
(71) compounds according to anyone of groups (1) to (10), (49) or (59) of the formula (I), in which R_8 is -C(=O)-R_9;

(72) compounds according to anyone of groups (1) to (10), (49) or (59) of the formula (I), in which R_8 is -CH_2-C(=O)-R_9;

Special preference is given within the scope of the invention to the compounds of formula (I) listed in Tables A1 to A8 and in Tables 1 to 180 and, where applicable, their tautomers, their mixtures of tautomers, their E/Z isomers and mixtures of E/Z isomers.

The invention also provides a process for preparing the compounds of the formula (I) and, if appropriate, tautomers thereof, wherein

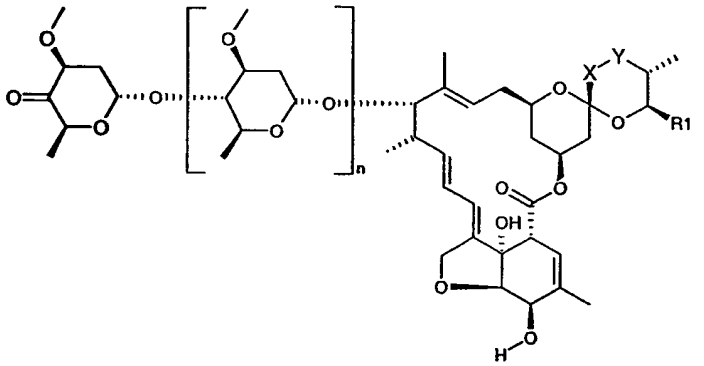
(A) for the preparation of a compound of the formula (I) as defined under (1) a compound of the formula



(II),

which is known and which can be prepared by methods known *per se*, and in which n, X-Y and R_1 have the same meanings as given above under (1) for formula (I), and G is a protecting group, for example a trialkylsilyl group or an ester group, is reacted with a compound of the formula R_2-Q-NH_2, which is known and which can be prepared by methods known *per se*, and in which R_2 and Q have the same meaning as given above under (1) for formula (I), and subsequently cleaving the protecting group by methods, which are known *per se*; or

(B) for the preparation of a compound of the formula (I) as defined under (1) a compound of the formula



(III),

which is known and which can be prepared by methods known *per se*, and in which n, X-Y and R_1 have the same meanings as given above under (1) for formula (I), is prepared by cleaving the protecting group G of the compound of the formula (II) as defined above, and then reacting the compound of the formula (III) with a compound of the formula R_2-Q-NH_2, which is known and which can be prepared by methods known *per se*, and in which R_2 and Q have the same meaning as given above under (1) for formula (I), in the same manner as in process variant (A).

The comments made above in connection with tautomers of compounds of formula (I) apply analogously to the starting materials mentioned hereinabove and hereinbelow in respect of their tautomers. The preferences of the subsitutents are the same as for the compounds of the formula (I).

In the processes of the present invention it is preferable to use those starting materials and intermediates which result in the compounds of formula (I) that are especially preferred.

The invention relates to all those embodiments of the process according to which a compound obtainable as starting material or intermediate at any stage of the process is used as starting material and all or some of the remaining steps are carried out, or in which a starting material is used in the form of a derivative and/or a salt and/or its diastereomers, or, especially, is formed under the reaction conditions. For instance compounds of formula (I) bearing a functional group in its free or protected form can be used as starting materials for the preparation of further compounds of formula (I). For such manipulations methods known to the person skilled in the art can be applied.

For example a compound of formula (I) wherein R_2 is $-CH_2CH_2OC(=O)CH_3$ can be converted to a compound of formula (I) wherein R_2 is $-CH_2CH_2OH$. Further standard reactions can deliver compounds of formula (I) wherein R_2 is $-CH_2CH_2OCH_2O$-Alkyl and $-CH_2CH_2N_3$. A compound of formula (I) wherein R_2 is $-CH_2CH_2N_3$ can be converted to a compound of formula (I) wherein R_2 is $-CH_2CH_2NH_2$. Treatment of such a compound of formula (I) with Hal-COR_9 gives compounds of formula (I) wherein R_2 is $-CH_2CH_2NHC(=O)R_9$.

The reactions described hereinabove and hereinbelow are carried out in a manner known *per se*, for example in the absence or, customarily, in the presence of a suitable solvent or diluent or of a mixture thereof, the reactions being carried out, as required, with cooling, at room temperature or with heating, for example in a temperature range of approximately from -80°C to the boiling temperature of the reaction medium, preferably from approximately 0°C to approximately +150°C, and, if necessary, in a closed vessel, under pressure, under an inert gas atmosphere and/or under anhydrous conditions. Especially advantageous reaction conditions can be found in the Examples.

The reaction time is not critical; a reaction time of from about 0.1 to about 24 hours, especially from about 0.5 to about 10 hours, is preferred.

The product is isolated by customary methods, for example by means of filtration, crystallisation, distillation or chromatography, or any suitable combination of such methods.

The starting materials mentioned hereinabove and hereinbelow that are used for the preparation of the compounds of formula (I) and, where applicable, their tautomers are known or can be prepared by methods known *per se*, e.g. as indicated below.

Process variant (A):

Examples of solvents and diluents include: aromatic, aliphatic and alicyclic hydrocarbons and halogenated hydrocarbons, such as benzene, toluene, xylene, mesitylene, tetraline, chlorobenzene, dichlorobenzene, bromobenzene, petroleum ether, hexane, cyclohexane, dichloromethane, trichloromethane, tetrachloromethane, dichloroethane, trichloroethene or tetrachloroethene; ethers, such as diethyl ether, dipropyl ether, diisopropyl ether, dibutyl ether, tert-butyl methyl ether, ethylene glycol monomethyl ether, ethylene glycol monoethyl ether, ethylene glycol dimethyl ether, dimethoxydiethyl ether, tetrahydrofuran or dioxane; alcohols, such as methanol, ethanol, propanol, isopropanol, butanol, ethylene glycol or glycerol; carboxylic acids, such as acetic acid, pivalic acid or formic acid; ketones, such as acetone, methyl ethyl ketone or methyl isobutyl ketone; carboxylic acid esters, such as methyl acetate, ethyl acetate, or esters of benzoic acid; amides, such as N,N-dimethylformamide, N,N-diethylformamide, N,N-dimethylacetamide, N-methylpyrrolidone or hexamethylphosphoric acid triamide; nitriles, such as acetonitrile or propionitrile; and sulfoxides, such as dimethyl sulfoxide; and also water; or mixtures of the mentioned solvents; especially suitable are esters, ethers, alcohols, carboxylic acids, or mixtures thereof, more especially ethyl acetate, isopropyl acetate, tetrahydrofuran, acetic acid, ethanol, iso-propanol or methanol.

The reactions are advantageously carried out in a temperature range of from about room temperature to the boiling point of the solvent used; preference being given to reaction at ambient temperature.

The reactions are advantageously carried out in the presence of a base. Such bases are known to a person skilled in the art, they include, for example, organic bases, for example amines, such as pyridin or trietylamine; or inorganic bases, such as, for example, hydroxides or carbonates, for example sodium hydroxide, sodium bicarbonate or potassium carbonate.

In another embodiment of Variant (A), the reactions are advantageously carried out in the absence of a base.

The reactions can be advantageously carried out in the presence of a water binding agent, which is known, such as, for example hygroscopic salts, for example magnesium

sulfate or sodium sulfate; or molecular sieves. Further examples of water binding agents are known to a person skilled in the art.

In another embodiment of Variant (A), the reactions are advantageously carried out in the absence of a water binding agent.

In a preferred embodiment of Variant (A) the reaction is carried out in methanol in the presence of acetic acid and pyridine at ambient temperature; the removal of the protecting group is subsequently carried out in tetrahydrofuran in the presence of HF and pyridine at ambient temperature.

Especially preferred conditions for this Process variant are described in Examples A2.1 and A6.1.

Process variant (B):

Examples of solvents and diluents include those listed above under Process variant (A); especially suitable are esters, ethers, alcohols, carboxylic acids, or mixtures thereof, more especially ethyl acetate, isopropyl acetate, tetrahydrofuran, acetic acid, ethanol, iso-propanol or methanol.

The reactions are advantageously carried out in a temperature range of from about room temperature to the boiling point of the solvent used; preference being given to reaction at ambient temperature.

The reactions are advantageously carried out in the presence of a base. Such bases are known to a person skilled in the art, they include, for example, organic bases, for example amines, such as pyridin or trietylamine; or inorganic bases, such as, for example, hydroxides or carbonates, for example sodium hydroxide, sodium bicarbonate or potassium carbonate.

In another embodiment of Variant (B), the reactions are advantageously carried out in the absence of a base.

The reactions can be advantageously carried out in the presence of a water binding agent, which is known, such as, for example hygroscopic salts, for example magnesium sulfate or sodium sulfate; or molecular sieves. Further examples of water binding agents are known to a person skilled in the art.

In another embodiment of Variant (B), the reactions are advantageously carried out in the absence of a water binding agent.

In a preferred embodiment of Variant (B) the reaction is carried out in methanol in the presence of acetic acid and pyridine at ambient temperature.

Especially preferred conditions for this Process variant are described in Examples A1.1, A3.1, A4.1, A5.1, A7.1 and A8.1.

The compounds of formula (I) may be in the form of one of the possible isomers or in the form of a mixture thereof, in the form of pure isomers or in the form of an isomeric mixture, i.e. in the form of a diastereomeric mixture; the invention relates both to the pure isomers and to the diastereomeric mixtures and is to be interpreted accordingly hereinabove and hereinbelow, even if stereochemical details are not mentioned specifically in every case.

The diastereomeric mixtures can be resolved into the pure isomers by known methods, for example by recrystallisation from a solvent, by chromatography, for example high pressure liquid chromatography (HPLC) on acetylcellulose, with the aid of suitable micro-organisms, by cleavage with specific, immobilised enzymes, or *via* the formation of inclusion compounds, for example using crown ethers, only one isomer being complexed.

Apart from by separation of corresponding mixtures of isomers, pure diastereoisomers can be obtained according to the invention also by generally known methods of stereoselective synthesis, for example by carrying out the process according to the invention using starting materials having correspondingly suitable stereochemistry.

In each case it is advantageous to isolate or synthesise the biologically more active isomer, where the individual components have different biological activity.

The compounds of formula (I) may also be obtained in the form of their hydrates and/or may include other solvents, for example solvents which may have been used for the crystallisation of compounds in solid form.

The invention relates especially to the preparation processes described in Examples A1.1 to A8.1.

In the area of pest control, the compounds of formula (I) according to the invention are active ingredients exhibiting valuable preventive and/or curative activity with a very advantageous biocidal spectrum and a very broad spectrum, even at low rates of concentration, while being well tolerated by warm-blooded animals, fish and plants. They are, surprisingly, equally suitable for controlling both plant pests and ecto- and endo-parasites in humans and more especially in productive livestock, domestic animals and pets. They are effective against all or individual development stages of normally sensitive animal pests, but also of

resistant animal pests, such as insects and representatives of the order Acarina, nematodes, cestodes and trematodes, while at the same time protecting useful organisms. The insecticidal or acaricidal activity of the active ingredients according to the invention may manifest itself directly, i.e. in the mortality of the pests, which occurs immediately or only after some time, for example during moulting, or indirectly, for example in reduced oviposition and/or hatching rate. Good activity corresponds to a mortality of at least 50 to 60 %.

Successful control within the scope of the subject of the invention is possible, in particular, of pests from the orders Lepidoptera, Coleoptera, Orthoptera, Isoptera, Psocoptera, Anoplura, Mallophaga, Thysanoptera, Heteroptera, Homoptera, Hymenoptera, Diptera, Siphonaptera, Thysanura and Acarina, mainly Acarina, Diptera, Thysanoptera, Lepidoptera and Coleoptera. Very especially good control is possible of the following pests:

Abagrotis spp., Abraxas spp., Acantholeucania spp., Acanthoplusia spp., Acarus spp., Acarus siro, Aceria spp., Aceria sheldoni, Acleris spp., Acoloithus spp., Acompsia spp., Acossus spp., Acria spp., Acrobasis spp., Acrocercops spp., Acrolepia spp., Acrolepiopsis spp., Acronicta spp., Acropolitis spp., Actebia spp., Aculus spp., Aculus schlechtendali, Adoxophyes spp., Adoxophyes reticulana, Aedes spp., Aegeria spp., Aethes spp., Agapeta spp., Agonopterix spp., Agriopis spp., Agriotes spp., Agriphila spp., Agrochola spp., Agroperina spp., Alabama spp., Alabama argillaceae, Agrotis spp., Albuna spp., Alcathoe spp., Alcis spp., Aleimma spp., Aletia spp., Aleurothrixus spp., Aleurothrixus floccosus, Aleyrodes spp., Aleyrodes brassicae, Allophyes spp., Alsophila spp., Amata spp., Amathes spp., Amblyomma spp., Amblyptilia spp., Ammoconia spp., Amorbia spp., Amphion spp., Amphipoea spp., Amphipyra spp., Amyelois spp., Anacamptodes spp., Anagrapha spp., Anarsia spp., Anatrychyntis spp., Anavitrinella spp., Ancylis spp., Andropolia spp., Anhimella spp., Antheraea spp., Antherigona spp., Antherigona soccata, Anthonomus spp., Anthonomus grandis, Anticarsia spp., Anticarsia gemmatalis, Aonidiella spp., Apamea spp., Aphania spp., Aphelia spp., Aphididae, Aphis spp., Apotomis spp., Aproaerema spp., Archippus spp., Archips spp., Acromyrmex, Arctia spp., Argas spp., Argolamprotes spp., Argyresthia spp., Argyrogramma spp., Argyroploce spp., Argyrotaenia spp., Arotrophora spp., Ascotis spp., Aspidiotus spp., Aspilapteryx spp., Asthenoptycha spp., Aterpia spp., Athetis spp., Atomaria spp., Atomaria linearis, Atta spp., Atypha spp., Autographa spp., Axylia spp., Bactra spp., Barbara spp., Batrachedra spp., Battaristis spp., Bembecia spp., Bemisia spp., Bemisia tabaci, Bibio spp., Bibio hortulanis, Bisigna spp., Blastesthia spp., Blatta spp., Blatella spp., Blepharosis spp., Bleptina spp., Boarmia spp., Bombyx spp., Bomolocha spp., Boophilus spp., Brachmia spp., Bradina spp., Brevipalpus spp., Brithys spp., Bryobia spp., Bryobia

praetiosa, Bryotropha spp., Bupalus spp., Busseola spp., Busseola fusca, Cabera spp., Cacoecimorpha spp., Cadra spp., Cadra cautella, Caenurgina spp., Calipitrimerus spp., Callierges spp., Callophpora spp., Callophpora erythrocephala, Calophasia spp., Caloptilia spp., Calybites spp., Capnoptycha spp., Capua spp., Caradrina spp., Caripeta spp., Carmenta spp., Carposina spp., Carposina nipponensis, Catamacta spp., Catelaphris spp., Catoptria spp., Caustoloma spp., Celaena spp., Celypha spp., Cenopis spp., Cephus spp., Ceramica spp., Cerapteryx spp., Ceratitis spp, Ceratophyllus spp., Ceroplaster spp., Chaetocnema spp., Chaetocnema tibialis, Chamaesphecia spp., Charanvca spp., Cheimophila spp., Chersotis spp., Chiasmia spp., Chilo spp., Chionodes spp., Chorioptes spp., Choristoneura spp., Chrysaspidia spp., Chrysodeixis spp., Chrysomya spp., Chrysomphalus spp., Chrysomphalus dictyospermi, Chrysomphalus aonidium, Chrysoteuchia spp., Cilix spp., Cimex spp., Clysia spp., Clysia ambiguella, Clepsis spp., Cnaemidophorus spp., Cnaphalocrocis spp., Cnephasia spp., Coccus spp., Coccus hesperidum, Cochylis spp., Coleophora spp., Colotois spp., Commophila spp., Conistra spp., Conopomorpha spp., Corcyra spp., Cornutiplusia spp., Cosmia spp., Cosmopolites spp., Cosmopterix spp., Cossus spp., Costaeonvexa spp., Crambus spp., Creatonotos spp., Crocidolomia spp., Crocidolomia binotalis, Croesia spp., Crymodes spp., Cryptaspasma spp., Cryptoblabes spp., Cryptocala spp., Cryptophlebia spp., Cryptophlebia leucotreta, Cryptoptila spp., Ctenopseustis spp., Ctenocephalides spp., Cucullia spp., Curculio spp., Culex spp., Cuterebra spp., Cydia spp., Cydia pomonella, Cymbalophora spp., Dactylethra spp., Dacus spp., Dadica spp., Damalinea spp., Dasychira spp., Decadarchis spp., Decodes spp., Deilephila spp., Deltodes spp., Dendrolimus spp., Depressaria spp., Dermestes spp., Dermanyssus spp., Dermanyssus gallinae, Diabrotica spp., Diachrysia spp., Diaphania spp., Diarsia spp., Diasemia spp., Diatraea spp., Diceratura spp., Dichomeris spp., Dichrocrocis spp., Dichrorampha spp., Dicycla spp., Dioryctria spp., Diparopsis spp., Diparopsis castanea, Dipleurina spp., Diprion spp., Diprionidae, Discestra spp., Distantiella spp., Distantiella theobroma, Ditula spp., Diurnea spp., Doratopteryx spp., Drepana spp., Drosphila spp., Drosphila melanogaster, Dysauxes spp., Dysdercus spp., Dysstroma spp., Eana spp., Earias spp., Ecclitica spp., Ecdytolopha spp., Ecpyrrhorrhoe spp., Ectomyelois spp., Eetropis spp., Egira spp., Elasmopalpus spp., Emmelia spp., mpoasca spp., Empyreuma spp., Enargia spp., Enarmonia spp., Endopiza spp., Endothenia spp., Endotricha spp., Eoreuma spp., Eotetranychus spp., Eotetranychus carpini, Epagoge spp., Epelis spp., Ephestia spp., Ephestiodes spp., Epiblema spp., Epiehoristodes spp., Epinotia spp., Epiphyas spp., Epiplema spp., Epipsestis spp., Epirrhoe spp., Episimus spp., Epitymbia spp., Epllachna spp., Erannis spp., Erastria spp.,

Eremnus spp., Ereunetis spp., Eriophyes spp., Eriosoma spp., Eriosoma lanigerum, Erythroneura spp., Estigmene spp., Ethmia spp., Etiella spp., Euagrotis spp., Eucosma spp., Euehlaena spp., Euelidia spp., Eueosma spp., Euchistus spp., Eucosmomorpha spp., Eudonia spp., Eufidonia spp., Euhyponomeutoides spp., Eulepitodes spp., Eulia spp., Eulithis spp., Eupithecia spp., Euplexia spp., Eupoecilia spp., Eupoecilia ambiguella, Euproctis spp., Eupsilia spp., Eurhodope spp., Eurois spp., Eurygaster spp., Eurythmia spp., Eustrotia spp., Euxoa spp., Euzophera spp., Evergestis spp., Evippe spp., Exartema spp., Fannia spp., Faronta spp., Feltia spp., Filatima spp., Fishia spp., Frankliniella spp., Fumibotys spp., Gaesa spp., Gasgardia spp., Gastrophilus spp., Gelechia spp., Gilpinia spp., Gilpinia polytoma, Glossina spp., Glyphipterix spp., Glyphodes spp., Gnorimoschemini spp., Gonodonta spp., Gortyna spp., Gracillaria spp., Graphania spp., Grapholita spp., Grapholitha spp., Gravitarmata spp., Gretchena spp., Griselda spp., Gryllotalpa spp., Gynaephora spp., Gypsonoma spp., Hada spp., Haematopinus spp., Halisidota spp., Harpipteryx spp., Harrisina spp., Hedya spp., Helicoverpa spp., Heliophobus spp., Heliothis spp., Hellula spp., Helotropa spp., Hemaris spp., Hercinothrips spp., Herculia spp., Hermonassa spp., Heterogenea spp., Holomelina spp., Homadaula spp., Homoeosoma spp., Homoglaea spp., Homohadena spp., Homona spp., Homonopsis spp., Hoplocampa spp., Hoplodrina spp., Hoshinoa spp., Hxalomma spp., Hydraecia spp., Hydriomena spp., Hyles spp., Hyloicus spp., Hypagyrtis spp., Hypatima spp., Hyphantria spp., Hyphantria cunea, Hypocala spp., Hypocoena spp., Hypodema spp., Hyppobosca spp., Hypsipyla spp., Hyssia spp., Hysterosia spp., Idaea spp., Idia spp., Ipimorpha spp., Isia spp., Isochorista spp., Isophrictis spp., Isopolia spp., Isotrias spp., Ixodes spp., Itame spp., Jodia spp., Jodis spp., Kawabea spp., Keiferia spp., Keiferia lycopersicella, Labdia spp., Lacinipolia spp., Lambdina spp., Lamprothritpa spp., Laodelphax spp., Lasius spp., Laspeyresia spp., Leptinotarsa spp., Leptinotarsa decemlineata, Leptocorisa spp., Leptostales spp., Lecanium spp., Lecanium comi, Lepidosaphes spp., Lepisma spp., Lepisma saccharina , Lesmone spp., Leucania spp., Leucinodes spp., Leucophaea spp., Leucophaea maderae, Leucoptera spp., Leucoptera scitella, Linognathus spp., Liposcelis spp., Lissorhoptrus spp., Lithacodia spp., Lithocolletis spp., Lithomoia spp., Lithophane spp., Lixodessa spp., Lobesia spp., Lobesia botrana, Lobophora spp., Locusta spp., Lomanaltes spp., Lomographa spp., Loxagrotis spp., Loxostege spp., Lucilia spp., Lymantria spp., Lymnaecia spp., Lyonetia spp., Lyriomyza spp., Macdonnoughia spp., Macrauzata spp., Macronoctua spp., Macrosiphus spp., Malacosoma spp., Maliarpha spp., Mamestra spp., Mamestra brassicae, Manduca spp., Manduca sexta, Marasmia spp., Margaritia spp., Matratinea spp., Matsumuraeses spp., Melanagromyza spp., Melipotes spp.,

Melissopus spp., Melittia spp., Melolontha spp., Meristis spp., Meritastis spp., Merophyas spp., Mesapamea spp., Mesogona spp., Mesoleuca spp., Metanema spp., Metendothenia spp., Metzneria spp., Micardia spp., Microcorses spp., Microleon spp., Mnesictena spp., Mocis spp., Monima spp., Monochroa spp., Monomorium spp., Monomorium pharaonis, Monopsis spp., Morrisonia spp., Musca spp., Mutuuraia spp., Myelois spp., Mythimna spp., Myzus spp., Naranga spp., Nedra spp., Nemapogon spp., Neodiprion spp., Neosphaleroptera spp., Nephelodes spp., Nephotettix spp., Nezara spp., Nilaparvata spp., Niphonympha spp., Nippoptilia spp., Noctua spp., Nola spp., Notocelia spp., Notodonta spp., Nudaurelia spp., Ochropleura spp., Ocnerostoma spp., Oestrus spp., Olethreutes spp., Oligia spp., Olindia spp., Olygonychus spp., Olygonychus gallinae, Oncocnemis spp., Operophtera spp., Ophisma spp., Opogona spp., Oraesia spp., Orniodoros spp., Orgyia spp., Oria spp., Orseolia spp., Orthodes spp., Orthogonia spp., Orthosia spp., Oryzaephilus spp., Oscinella spp., Oscinella frit, Osminia spp., Ostrinia spp., Ostrinia nubilalis, Otiorhynchus spp., Ourapteryx spp., Pachetra spp., Pachysphinx spp., Pagyda spp., Paleacrita spp., Paliga spp., Palthis spp., Pammene spp., Pandemis spp., Panemeria spp., Panolis spp., Panolis flammea, Panonychus spp., Parargyresthia spp., Paradiarsia spp., Paralobesia spp., Paranthrene spp., Parapandemis spp., Parapediasia spp., Parastichtis spp., Parasyndemis spp., Paratoria spp., Pareromeme spp., Pectinophora spp., Pectinophora gossypiella, Pediculus spp., Pegomyia spp., Pegomyia hyoscyami, Pelochrista spp., Pennisetia spp., Penstemonia spp., Pemphigus spp., Peribatodes spp., Peridroma spp., Perileucoptera spp., Periplaneta spp., Perizoma spp., Petrova spp., Pexicopia spp., Phalonia spp., Phalonidia spp., Phaneta spp., Phlyctaenia spp., Phlyctinus spp., Phorbia spp., Phragmatobia spp., Phricanthes spp., Phthorimaea spp., Phthorimaea operculella, Phyllocnistis spp., Phyllocoptruta spp., Phyllocoptruta oleivora, Phyllonorycter spp., Phyllophila spp., Phylloxera spp., Pieris spp., Pieris rapae, Piesma spp., Planococus spp., Planotortrix spp., Platyedra spp., Platynota spp., Platyptilia spp., Platysenta spp., Plodia spp., Plusia spp., Plutella spp., Plutella xylostella, Podosesia spp., Polia spp., Popillia spp., Polymixis spp., Polyphagotarsonemus spp., Polyphagotarsonemus latus, Prays spp., Prionoxystus spp., Probole spp., Proceras spp., Prochoerodes spp., Proeulia spp., Proschistis spp., Proselena spp., Proserpinus spp., Protagrotis spp., Proteoteras spp., Protobathra spp., Protoschinia spp., Pselnophorus spp., Pseudaletia spp., Pseudanthonomus spp., Pseudaternelia spp., Pseudaulacaspis spp., Pseudexentera spp., Pseudococus spp., Pseudohermenias spp., Pseudoplusia spp., Psoroptes spp., Psylla spp., Psylliodes spp., Pterophorus spp., Ptycholoma spp., Pulvinaria spp., Pulvinaria aethiopica, Pyralis spp., Pyrausta spp., Pyrgotis spp., Pyrreferra spp., Pyrrharctia

spp., Quadraspidiotus spp., Rancora spp., Raphia spp., Reticultermes spp., Retinia spp., Rhagoletis spp, Rhagoletis pomonella, Rhipicephalus spp., Rhizoglyphus spp., Rhizopertha spp., Rhodnius spp., Rhophalosiphum spp., Rhopobota spp., Rhyacia spp., Rhyacionia spp., Rhynchopacha spp., Rhyzosthenes spp., Rivula spp., Rondotia spp., Rusidrina spp., Rynchaglaea spp., Sabulodes spp., Sahlbergella spp., Sahlbergella singularis, Saissetia spp., Samia spp., Sannina spp., Sanninoidea spp., Saphoideus spp., Sarcoptes spp., Sathrobrota spp., Scarabeidae, Sceliodes spp., Schinia spp., Schistocerca spp., Schizaphis spp., Schizura spp., Schreckensteinia spp., Sciara spp., Scirpophaga spp., Scirthrips auranti, Scoparia spp., Scopula spp., Scotia spp., Scotinophara spp., Scotogramma spp., Scrobipalpa spp., Scrobipalpopsis spp., Semiothisa spp., Sereda spp., Sesamia spp., Sesia spp., Sicya spp., Sideridis spp., Simyra spp., Sineugraphe spp., Sitochroa spp., Sitobion spp., Sitophilus spp., Sitotroga spp., Solenopsis spp., Smerinthus spp., Sophronia spp., Spaelotis spp., Spargaloma spp., Sparganothis spp., Spatalistis spp., Sperchia spp., Sphecia spp., Sphinx spp., Spilonota spp., Spodoptera spp., Spodoptera littoralis, Stagmatophora spp., Staphylinochrous spp., Stathmopoda spp., Stenodes spp., Sterrha spp., Stomoxys spp., Strophedra spp., Sunira spp., Sutyna spp., Swammerdamia spp., Syllomatia spp., Sympistis spp., Synanthedon spp., Synaxis spp., Syncopacma spp., Syndemis spp., Syngrapha spp., Synthomeida spp., Tabanus spp., Taeniarchis spp., Taeniothrips spp., Tannia spp., Tarsonemus spp., Tegulifera spp., Tehama spp., Teleiodes spp., Telorta spp., Tenebrio spp., Tephrina spp., Teratoglaea spp., Terricula spp., Tethea spp., Tetranychus spp., Thalpophila spp., Thaumetopoea spp., Thiodia spp., Thrips spp., Thrips palmi, Thrips tabaci, Thyridopteryx spp., Thyris spp., Tineola spp., Tipula spp., Tortricidia spp., Tortrix spp., Trachea spp., Trialeurodes spp., Trialeurodes vaporariorum, Triatoma spp., Triaxomera spp., Tribolium spp., Tricodectes spp., Trichoplusia spp., Trichoplusia ni, Trichoptilus spp., Trioza spp., Trioza erytreae, Triphaenia spp., Triphosa spp., Trogoderma spp., Tyria spp., Udea spp., Unaspis spp., Unaspis citri, Utetheisa spp., Valeriodes spp., Vespa spp., Vespamima spp., Vitacea spp., Vitula spp., Witlesia spp., Xanthia spp., Xanthorhoe spp., Xanthotype spp., Xenomicta spp., Xenopsylla spp., Xenopsylla cheopsis, Xestia spp., Xylena spp., Xylomyges spp., Xyrosaris spp., Yponomeuta spp., Ypsolopha spp., Zale spp., Zanclognathus spp., Zeiraphera spp., Zenodoxus spp., Zeuzera spp., Zygaena spp.,

It is also possible to control pests of the class Nematoda using the compounds according to the invention. Such pests include, for example,

root knot nematodes, cyst-forming nematodes and also stem and leaf nematodes;

especially of Heterodera spp., e.g. Heterodera schachtii, Heterodora avenae and Heterodora trifolii; Globodera spp., e.g. Globodera rostochiensis; Meloidogyne spp., e.g. Meloidogyne incognita and Meloidogyne javanica; Radopholus spp., e.g. Radopholus similis; Pratylenchus, e.g. Pratylenchus neglectans and Pratylenchus penetrans; Tylenchulus, e.g. Tylenchulus semipenetrans; Longidorus, Trichodorus, Xiphinema, Ditylenchus, Apheenchoides and Anguina; especially Meloidogyne, e.g. Meloidogyne incognita, and Heterodera, e.g. Heterodera glycines.

An especially important aspect of the present invention is the use of the compounds of formula (I) according to the invention in the protection of plants against parasitic feeding pests.

The action of the compounds according to the invention and the compositions comprising them against animal pests can be significantly broadened and adapted to the given circumstances by the addition of other insecticides, acaricides or nematicides. Suitable additives include, for example, representatives of the following classes of active ingredient: organophosphorus compounds, nitrophenols and derivatives, formamidines, ureas, carbamates, pyrethroids, chlorinated hydrocarbons, neonicotinoids and Bacillus thuringiensis preparations.

Examples of especially suitable mixing partners include: azamethiphos; chlorfenvinphos; cypermethrin, cypermethrin high-cis; cyromazine; diafenthiuron; diazinon; dichlorvos; dicrotophos; dicyclanil; fenoxycarb; fluazuron; furathiocarb; isazofos; iodfenphos; kinoprene; lufenuron; methacriphos; methidathion; monocrotophos; phosphamidon; profenofos; diofenolan; a compound obtainable from the Bacillus thuringiensis strain GC91 or from strain NCTC11821; pymetrozine; bromopropylate; methoprene; disulfoton; quinalphos; taufluvalinate; thiocyclam; thiometon; aldicarb; azinphos-methyl; benfuracarb; bifenthrin; buprofezin; carbofuran; dibutylaminothio; cartap; chlorfluazuron; chlorpyrifos; clothianidin; cyfluthrin; lambda-cyhalothrin; alpha-cypermethrin; zeta-cypermethrin; deltamethrin; diflubenzuron; endosulfan; ethiofencarb; fenitrothion; fenobucarb; fenvalerate; formothion; methiocarb; heptenophos; imidacloprid; isoprocarb; methamidophos; methomyl; mevinphos; parathion; parathion-methyl; phosalone; pirimicarb; propoxur; teflubenzuron; terbufos; triazamate; fenobucarb; tebufenozide; fipronil; beta-cyfluthrin; silafluofen; fenpyroximate; pyridaben; pyridalyl; fenazaquin; pyriproxyfen; pyrimidifen; nitenpyram; acetamiprid; emamectin; emamectin-benzoate; spinosad; a plant extract that is active against insects; a preparation that comprises nematodes and is active against insects; a preparation

obtainable from Bacillus subtilis; a preparation that comprises fungi and is active against insects; a preparation that comprises viruses and is active against insects; chlorfenapyr; acephate; acrinathrin; alanycarb; alphamethrin; amitraz; AZ 60541; azinphos A; azinphos M; azocyclotin; bendiocarb; bensultap; beta-cyfluthrin; brofenprox; bromophos A; bufencarb; butocarboxin; butylpyridaben; cadusafos; carbaryl; carbophenothion; chloethocarb; chlorethoxyfos; chlormephos; cis-resmethrin; clocythrin; clofentezine; cyanophos; cyclo-prothrin; cyhexatin; demeton M; demeton S; demeton-S-methyl; dichlofenthion; dicliphos; diethion; dimethoate; dimethylvinphos; dioxathion; edifenphos; esfenvalerate; ethion; ethofenprox; ethoprophos; etrimphos; fenamiphos; fenbutatin oxide; fenothiocarb; fenpropathrin; fenpyrad; fenthion; fluazinam; flucycloxuron; flucythrinate; flufenoxuron; flufenprox; fonophos; fosthiazate; fubfenprox; HCH; hexaflumuron; hexythiazox; flonicamid; iprobenfos; isofenphos; isoxathion; ivermectin; malathion; mecarbam; mesulfenphos; metaldehyde; metolcarb; milbemectin; moxidectin; naled; NC 184; nithiazine; omethoate; oxamyl; oxydemethon M; oxydeprofos; permethrin; phenthoate; phorate; phosmet; phoxim; pirimiphos M; pirimiphos E; promecarb; propaphos; prothiofos; prothoate; pyrachlophos; pyradaphenthion; pyresmethrin; pyrethrum; tebufenozide; salithion; sebufos; sulfotep; sul-profos; tebufenpyrad; tebupirimphos; tefluthrin; temephos; terbam; tetrachlorvinphos; thiaclo-prid; thiafenox; thiamethoxam; thiodicarb; thiofanox; thionazin; thuringiensin; tralomethrin; triarathene; triazophos; triazuron; trichlorfon; triflumuron; trimethacarb; vamidothion; xylylcarb; etoxazole; zetamethrin; indoxacarb; methoxyfenozide; bifenazate; XMC (3,5-xylyl methylcarbamate); or the fungus pathogen Metarhizium anisopliae.

The compounds according to the invention can be used to control, i.e. to inhibit or destroy, pests of the mentioned type occurring on plants, especially on useful plants and ornamentals in agriculture, in horticulture and in forestry, or on parts of such plants, such as the fruits, blossoms, leaves, stems, tubers or roots, while in some cases plant parts that grow later are still protected against those pests.

Target crops include especially cereals, such as wheat, barley, rye, oats, rice, maize and sorghum; beet, such as sugar beet and fodder beet; fruit, e.g. pomes, stone fruit and soft fruit, such as apples, pears, plums, peaches, almonds, cherries and berries, e.g. straw-berries, raspberries and blackberries; leguminous plants, such as beans, lentils, peas and soybeans; oil plants, such as rape, mustard, poppy, olives, sunflowers, coconut, castor oil, cocoa and groundnuts; cucurbitaceae, such as marrows, cucumbers and melons; fibre plants, such as cotton, flax, hemp and jute; citrus fruits, such as oranges, lemons, grapefruit and mandarins; vegetables, such as spinach, lettuce, asparagus, cabbages, carrots, onions,

tomatoes, potatoes and paprika; lauraceae, such as avocado, cinnamon and camphor; and tobacco, nuts, coffee, aubergines, sugar cane, tea, pepper, vines, hops, bananas, natural rubber plants and ornamentals.

Further areas of use of the compounds according to the invention are the protection of stored goods and storerooms and the protection of raw materials, and also in the hygiene sector, especially the protection of domestic animals and productive livestock against pests of the mentioned type, more especially the protection of domestic animals, especially cats and dogs, from infestation by fleas, ticks and nematodes.

The invention therefore relates also to pesticidal compositions, such as emulsifiable concentrates, suspension concentrates, directly sprayable or dilutable solutions, spreadable pastes, dilute emulsions, wettable powders, soluble powders, dispersible powders, wettable powders, dusts, granules and encapsulations of polymer substances, that comprise at least one of the compounds according to the invention, the choice of formulation being made in accordance with the intended objectives and the prevailing circumstances.

The active ingredient is used in those compositions in pure form, a solid active ingredient, for example, in a specific particle size, or preferably together with at least one of the adjuvants customary in formulation technology, such as extenders, e.g. solvents or solid carriers, or surface-active compounds (surfactants). In the area of parasite control in humans, domestic animals, productive livestock and pets it will be self-evident that only physiologically tolerable additives are used.

Solvents are, for example: non-hydrogenated or partly hydrogenated aromatic hydrocarbons, preferably fractions C_8 to C_{12} of alkylbenzenes, such as xylene mixtures, alkylated naphthalenes or tetrahydronaphthalene, aliphatic or cycloaliphatic hydrocarbons, such as paraffins or cyclohexane, alcohols, such as ethanol, propanol or butanol, glycols and ethers and esters thereof, such as propylene glycol, dipropylene glycol ether, ethylene glycol or ethylene glycol monomethyl or -ethyl ether, ketones, such as cyclohexanone, isophorone or diacetone alcohol, strongly polar solvents, such as N-methylpyrrolid-2-one, dimethyl sulfoxide or N,N-dimethylformamide, water, non-epoxidized or epoxidized plant oils, such as non-epoxidized or epoxidized rapeseed, castor, coconut or soya oil, and silicone oils.

The solid carriers used, for example for dusts and dispersible powders, are as a rule natural rock powders, such as calcite, talc, kaolin, montmorillonite or attapulgite. Highly disperse silicic acids or highly disperse absorbent polymers can also be added to improve the physical properties. Granular adsorptive granule carriers are porous types, such as

pumice, crushed brick, sepiolite or bentonite, and non-sorbent carrier materials are calcite or sand. A large number of granular materials of inorganic or organic nature can furthermore be used, in particular dolomite or comminuted plant residues.

Surface-active compounds are, depending on the nature of the active compound to be formulated, nonionic, cationic and/or anionic surfactants or surfactant mixtures with good emulsifying, dispersing and wetting properties. The surfactants listed below are to be regarded only as examples; many other surfactants which are customary in formulation technology and are suitable according to the invention are described in the relevant literature.

Nonionic surfactants are, in particular, polyglycol ether derivatives of aliphatic or cycloaliphatic alcohols, saturated or unsaturated fatty acids and alkylphenols, which can contain 3 to 30 glycol ether groups and 8 to 20 carbon atoms in the (aliphatic) hydrocarbon radical and 6 to 18 carbon atoms in the alkyl radical of the alkylphenols. Substances which are furthermore suitable are water-soluble polyethylene oxide adducts, containing 20 to 250 ethylene glycol ether and 10 to 100 propylene glycol ether groups, on propylene glycol, ethylene diaminopolypropylene glycol and alkyl polypropylene glycol having 1 to 10 carbon atoms in the alkyl chain. The compounds mentioned usually contain 1 to 5 ethylene glycol units per propylene glycol unit. Examples are nonylphenol-polyethoxyethanols, castor oil polyglycol ethers, polypropylene-polyethylene oxide adducts, tributylphenoxypolyethoxyethanol, polyethylene glycol and octylphenoxypolyethoxyethanol. Other substances are fatty acid esters of polyoxyethylene sorbitan, such as polyoxyethylene sorbitan trioleate.

The cationic surfactants are, in particular, quaternary ammonium salts which contain, as substituents, at least one alkyl radical having 8 to 22 C atoms and, as further substituents, lower, non-halogenated or halogenated alkyl, benzyl or lower hydroxyalkyl radicals. The salts are preferably in the form of halides, methyl-sulfates or ethyl-sulfates. Examples are stearyl-trimethyl-ammonium chloride and benzyl-di-(2-chloroethyl)-ethyl-ammonium bromide.

Suitable anionic surfactants can be both water-soluble soaps and water-soluble synthetic surface-active compounds. Suitable soaps are the alkali metal, alkaline earth metal and substituted or unsubstituted ammonium salts of higher fatty acids (C_{10}-C_{22}), such as the sodium or potassium salts of oleic or stearic acid, or of naturally occurring fatty acid mixtures, which can be obtained, for example, from coconut oil or tall oil; and furthermore also the fatty acid methyl-taurine salts. However, synthetic surfactants are more frequently

used, in particular fatty sulfonates, fatty sulfates, sulfonated benzimidazole derivatives or alkylarylsulfonates. The fatty sulfonates and sulfates are as a rule in the form of alkali metal, alkaline earth metal or substituted or unsubstituted ammonium salts and in general have an alkyl radical of 8 to 22 C atoms, alkyl also including the alkyl moiety of acyl radicals; examples are the sodium or calcium salt of ligninsulfonic acid, of dodecylsulfuric acid ester or of a fatty alcohol sulfate mixture prepared from naturally occurring fatty acids. These also include the salts of sulfuric acid esters and sulfonic acids of fatty alcohol-ethylene oxide adducts. The sulfonated benzimidazole derivatives preferably contain 2 sulfonic acid groups and a fatty acid radical having about 8 to 22 C atoms. Alkylarylsulfonates are, for example, the sodium, calcium or triethanolammonium salts of dodecylbenzenesulfonic acid, of dibutylnaphthalenesulfonic acid or of a naphthalenesulfonic acid-formaldehyde condensation product. Corresponding phosphates, such as salts of the phosphoric acid ester of a p-nonylphenol-(4-14)-ethylene oxide adduct or phospholipids, can further also be used.

The compositions as a rule comprise 0.1 to 99 %, in particular 0.1 to 95 %, of active compound and 1 to 99.9 %, in particular 5 to 99.9 %, of - at least - one solid or liquid auxiliary, it being possible as a rule for 0 to 25 %, in particular 0.1 to 20 %, of the composition to be surfactants (% is in each case per cent by weight). While concentrated compositions are more preferred as commercial goods, the end user as a rule uses dilute compositions which comprise considerably lower concentrations of active compound. Preferred compositions are composed, in particular, as follows (% = per cent by weight):

Emulsifiable concentrates:

active ingredient:	1 to 90%, preferably 5 to 20%
surfactant:	1 to 30%, preferably 10 to 20%
solvent:	5 to 98%, preferably 70 to 85%

Dusts:

active ingredient:	0.1 to 10%, preferably 0.1 to 1%
solid carrier:	99.9 to 90%, preferably 99.9 to 99%

Suspension concentrates:

active ingredient:	5 to 75%, preferably 10 to 50%
water:	94 to 24%, preferably 88 to 30%
surfactant:	1 to 40%, preferably 2 to 30%

Wettable powders:

active ingredient:	0.5 to 90%, preferably 1 to 80%
surfactant:	0.5 to 20%, preferably 1 to 15%
solid carrier:	5 to 99%, preferably 15 to 98%

Granules:

active ingredient:	0.5 to 30%, preferably 3 to 15%
solid carrier:	99.5 to 70%, preferably 97 to 85%

The compositions according to the invention may also comprise further solid or liquid adjuvants, such as stabilisers, e.g. vegetable oils or epoxidised vegetable oils (e.g. epoxidised coconut oil, rapeseed oil or soybean oil), antifoams, e.g. silicone oil, preservatives, viscosity regulators, binders and/or tackifiers as well as fertilisers or other active ingredients for obtaining special effects, e.g. acaricides, bactericides, fungicides, nematicides, molluscicides or selective herbicides.

The crop protection products according to the invention are prepared in known manner, in the absence of adjuvants, e.g. by grinding, sieving and/or compressing a solid active ingredient or mixture of active ingredients, for example to a certain particle size, and in the presence of at least one adjuvant, for example by intimately mixing and/or grinding the active ingredient or mixture of active ingredients with the adjuvant(s). The invention relates likewise to those processes for the preparation of the compositions according to the invention and to the use of the compounds of formula (I) in the preparation of those compositions.

The invention relates also to the methods of application of the crop protection products, i.e. the methods of controlling pests of the mentioned type, such as spraying, atomising, dusting, coating, dressing, scattering or pouring, which are selected in accordance with the intended objectives and the prevailing circumstances, and to the use of the compositions for controlling pests of the mentioned type. Typical rates of concentration are from 0.1 to 1000 ppm, preferably from 0.1 to 500 ppm, of active ingredient. The rates of application per hectare are generally from 1 to 2000 g of active ingredient per hectare, especially from 10 to 1000 g/ha, preferably from 20 to 600 g/ha, more especially from 20 to 100 g/ha.

A preferred method of application in the area of crop protection is application to the foliage of the plants (foliar application), the frequency and the rate of application being dependent upon the risk of infestation by the pest in question. However, the active ingredient can also penetrate the plants through the roots (systemic action) when the locus of the

plants is impregnated with a liquid formulation or when the active ingredient is incorporated in solid form into the locus of the plants, for example into the soil, e.g. in granular form (soil application). In the case of paddy rice crops, such granules may be applied in metered amounts to the flooded rice field.

The crop protection products according to the invention are also suitable for protecting plant propagation material, e.g. seed, such as fruits, tubers or grains, or plant cuttings, against animal pests. The propagation material can be treated with the composition before planting: seed, for example, can be dressed before being sown. The active ingredients according to the invention can also be applied to grains (coating), either by impregnating the seeds in a liquid formulation or by coating them with a solid formulation. The composition can also be applied to the planting site when the propagation material is being planted, for example to the seed furrow during sowing. The invention relates also to such methods of treating plant propagation material and to the plant propagation material so treated.

The following Examples serve to illustrate the invention. They do not limit the invention. Temperatures are given in degrees Celsius; mixing ratios of solvents are given in parts by volume.

Preparation Examples:

Example A1.1: 4'-desoxy-4'-(methoxycarbonyl-hydrazono)-avermectin B1 monosaccharide

2 g 4'-desoxy-4'-oxo-avermectin B1 monosaccharide are dissolved in 20 ml methanol, 25 ml pyridine, 0.1 ml acetic acid and 0.4 g hydrazinecarboxylic acid methyl ester are added. The mixture is stirred at room tempertaure for 18 hours, then the solvent is removed in vacuo. The residue is extracted with dichloromethane and aqueous sodium bicarbonate, the organic phase is dried over sodium sulfate and the solvent is distilled off. The residue is purified by chromatography on silica gel with hexane/ethyl acetate, yielding 4'-desoxy-4'-(methoxycarbonyl-hydrazono)-avermectin B1 monosaccharide.

Example A2.1: 4'-desoxy-4'-(phenylamino-carbonyl-hydrazono)-avermectin B1 monosaccharide

Step 1: 10 g 4'-desoxy-4'-oxo-5-O-t-butyldimethylsilyl-avermectin B1 monosaccharide are dissolved in 65 ml methanol, 100 ml pyridine, 1 ml acetic acid and 2 g N-phenyl-hydrazinecarboxamide are added. The mixture is stirred at room tempertaure for 48 hours, then the solvent is removed in vacuo. The residue is extracted with dichloromethane and

aqueous sodium bicarbonate, the organic phase is dried over sodium sulfate and the solvent is distilled off. The residue is purified by chromatography on silica gel with hexane/ethyl acetate, yielding 4'-desoxy-4'-(phenylamino-carbonyl-hydrazono)- 5-O-t-butyldimethylsilyl-avermectin B1 monosaccharide.

Step 2: 7 g 4'-desoxy-4'-(phenylamino-carbonyl-hydrazono)- 5-O-t-butyldimethylsilyl-avermectin B1 monosaccharide are dissolved in 75 ml tetrahydrofuran, then 25 ml of a stock solution are added, which is prepared from 250 g 70% HF-Pyridin, 275 ml tetrahydrofuran and 125 ml pyridine. The mixture is stirred at room temperature for 24 hours, poured into water, and extracted with ethyl acetate. Then the phases are separated; the organic phase is dried over sodium sulfate and the solvents are distilled off. The residue is purified by chromatography on silica gel with hexane/ethyl acetate, yielding 4'-desoxy-4'-(phenylamino-carbonyl-hydrazono)-avermectin B1 monosaccharide.

Example A3.1: 4'-desoxy-4'-[(4-chloro-benzoyl)-hydrazono]-avermectin B1 monosaccharide

3 g 4'-desoxy-4'-oxo-avermectin B1 monosaccharide are dissolved in 20 ml methanol, 30 ml pyridine, 0.3 ml acetic acid and 0.7 g 4-chloro-benzoic acid hydrazide are added. The mixture is stirred at room tempertaure for 48 hours, then the solvent is removed in vacuo. The residue is extracted with dichloromethane and aqueous sodium bicarbonate, the organic phase is dried over sodium sulfate and the solvent is distilled off. The residue is purified by chromatography on silica gel with hexane/ethyl acetate, yielding 4'-desoxy-4'-[(4-chloro-benzoyl)-hydrazono]-avermectin B1 monosaccharide.

Example A3.12: 4'-desoxy-4'-(tert-butyloxycarbonyloxy-imino)-avermectin B1 monosaccharide

300 mg 4'-desoxy-4'- hydroxyimino-5-O-t-butyldimethylsilyl-avermectin B1 mono-saccharide are dissolved in 3 ml dichloromethane, 86 mg dimethylaminopyridine, 142 µl pivalic anhydride are added. The mixture is stirred at room temperature for 1 hour, the solvent is removed in vacuo after filtration on silica gel with dichloromethane. The residue is used without additionnal purification. The residue is dissolved in 7.5 ml tetrahydrofuran, then 1.5 ml of a stock solution are added, which is prepared from 250 g 70% HF-Pyridin, 275 ml tetrahydrofuran and 125 ml pyridine. The mixture is stirred at room temperature for 24 hours, poured into water, and extracted with ethyl acetate. Then the phases are separated; the organic phase is dried over sodium sulfate and the solvents are distilled off. The residue is

purified by chromatography on silica gel with hexane/ethyl acetate, yielding 4'-desoxy-4'-(tert-butylcarbonyloxy-imino)-avermectin B1 monosaccharide.

Example A4.1: 4'-desoxy-4'-(methoxy-imino)-avermectin B1 monosaccharide

3 g 4'-desoxy-4'-oxo-avermectin B1 monosaccharide are dissolved in 20 ml methanol, 30 ml pyridine and 2.2 g O-methyl-hydroxylamine hydrochloride are added. The mixture is stirred at room tempertaure for 12 hours, then the solvent is removed in vacuo. The residue is purified by chromatography on silica gel with hexane/ethyl acetate, yielding 4'-desoxy-4'-(methoxy-imino)-avermectin B1 monosaccharide.

Example A4.12: 4'-desoxy-4'-(methoxymethyloxy-imino)-avermectin B1 monosaccharide

10 g 4'-desoxy-4'-oxo-5-O-t-butyldimethylsilyl-avermectin B1 monosaccharide are dissolved in 94 ml methanol, 2.03 ml pyridine and 1.8 g O-Methoxymethyl-hydroxylamine are added. The mixture is stirred at room temperature for 2 days, then the solvent is removed in vacuo. The residue is used without additionnal purification. A part of the residue (0.300 mg) is dissolved in 7.5 ml tetrahydrofuran, then 1.5 ml of a stock solution are added, which is prepared from 250 g 70% HF-Pyridin, 275 ml tetrahydrofuran and 125 ml pyridine. The mixture is stirred at room temperature for 24 hours, poured into water, and extracted with ethyl acetate. Then the phases are separated; the organic phase is dried over sodium sulfate and the solvents are distilled off. The residue is purified by chromatography on silica gel with hexane/ethyl acetate, yielding : 4'-desoxy-4'-(methoxymethyloxy-imino)-avermectin B1 monosaccharide.

Example A5.1: 4"-desoxy-4"-(phenoxycarbonyl-hydrazono)-avermectin B1

4"-desoxy-4"-(phenoxycarbonyl-hydrazono)-avermectin B1 is obtained from 4"-desoxy-4"-oxo-avermectin B1 and hydrazinecarboxylic acid phenyl ester by the same method as described for Example A1.1.

Example A5.4: 4"-desoxy-4"-(methyloxycarbonyloxy-imino)-avermectin B1

300 mg 4"-desoxy-4"- hydroxyimino-5-O-t-butyldimethylsilyl-avermectin B1 are dissolved in 3 ml dichloromethane, 73 mg dimethylaminopyridine, 46 µl methyl chloroformate are added. The mixture is stirred at room temperature for 1 hour, then the solvent is removed in vacuo after filtration on silica gel with dichloromethane. The residue is used without additionnal purification for the next step. The residue is dissolved in 7.5 ml tetrahydrofuran, then 1.5 ml of a stock solution are added, which is prepared from 250 g 70% HF-Pyridin, 275 ml

tetrahydrofuran and 125 ml pyridine. The mixture is stirred at room temperature for 24 hours, poured into water, and extracted with ethyl acetate. Then the phases are separated; the organic phase is dried over sodium sulfate and the solvents are distilled off. The residue is purified by chromatography on silica gel with hexane/ethyl acetate, yielding 4"-desoxy-4"-(methyloxycarbonyloxy-imino)-avermectin B1.

Example A6.1: 4"-desoxy-4"-(phenylamino-carbonyl-hydrazono)-avermectin B1

4"-desoxy-4"-(phenylamino-carbonyl-hydrazono)-avermectin B1 is obtained from 4"-desoxy-4"-oxo-5-O-t-butyldimethylsilyl-avermectin B1 and N-phenyl-hydrazinecarboxamide by the same method as described for Example A2.1.

Example A7.1: 4"-desoxy-4"-[(4-chloro-benzoyl)-hydrazono]-avermectin B1

4"-desoxy-4"-[(4-chloro-benzoyl)-hydrazono]-avermectin B1 is obtained from 4"-desoxy-4"-oxo-avermectin B1 and 4-chloro-benzoic acid hydrazide by the same method as described for Example A3.1.

Example A7.23: 4"-desoxy-4"-(acetatoxy-imino)-avermectin B1

300 mg 4"-desoxy-4"- hydroxyimino-5-O-t-butyldimethylsilyl-avermectin B1 are dissolved in 3 ml dichloromethane, 40 mg dimethylaminopyridine, 32 µl acetic anhydride are added. The mixture is stirred at room temperature for 1 hour, then 40 mg dimethylamino-pyridine, 32 µl acetic anhydride are added again. The solvent is removed in vacuo after filtration on silica gel with dichloromethane. The residue is used without additionnal purify-cation. The residue is dissolved in 7.5 ml tetrahydrofuran, then 1.5 ml of a stock solution are added, which is prepared from 250 g 70% HF-Pyridin, 275 ml tetrahydrofuran and 125 ml pyridine. The mixture is stirred at room temperature for 24 hours, poured into water, and extracted with ethyl acetate. Then the phases are separated; the organic phase is dried over sodium sulfate and the solvents are distilled off. The residue is purified by chromatography on silica gel with hexane/ethyl acetate, yielding 4"-desoxy-4"-(acetatoxy-imino)-avermectin B1.

Example A8.1: 4"-desoxy-4"-(n-hexyloxy-imino)-avermectin B1

4"-desoxy-4"-(n-hexyloxy-imino)-avermectin B1 is obtained from 4"-desoxy-4"-oxo-avermectin B1 and O-n-hexyl-hydroxylamine hydrochloride by the same method as described for Example A4.1.

Similarly to the preparation examples above it is also possible to prepare the compounds listed in Tables A1 to A8 and Tables 1 to 216. In the Tables, the symbol ~~~ denotes – where necessary - the bond through which the radical in question is attached to the N-, O- or C-atom of the skeleton.

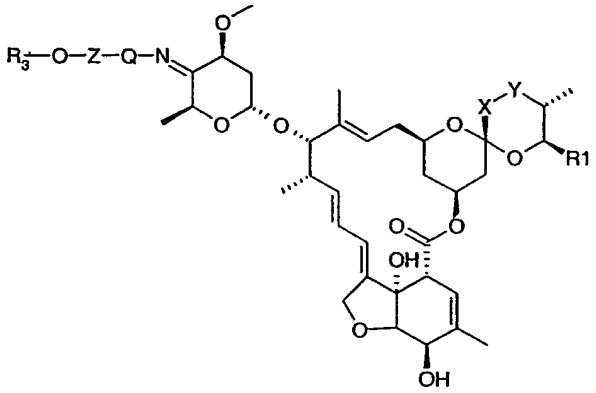
Since in most cases the compounds are present as mixtures of the avermectin derivatives B1a and B1b, characterization by customary physical data such as melting point or refractive index makes little sense. For this reason, the compounds are characterized by the retention times which are determined in an analysis by HPLC (high performance liquid chromatography). Here, the term B1a refers to the main component in which R_1 is sec-butyl, with a content of usually more than 80%. B1b denotes the minor component in which R_1 is isopropyl. Where two retention times are given either for the B1a derivative, for the B1b derivative, or for both, the compounds are mixtures of E/Z isomers which can be separated chromatographically. In the case of compounds where a retention time is given only in column B1a or only in column B1b, the pure B1a or B1b component, respectively, can be obtained during work-up. The correct structures of the B1a and B1b components are assigned by mass spectrometry.

The following method is used for HPLC analysis:

HPLC gradient conditions			
Solvent A:	0.01% of trifluoroacetic acid in H_2O		
Solvent B:	0.01% of trifluoroacetic acid in CH_3CN		
Time [min]	A [%]	B [%]	Flow rate [µl/min]
0	80	20	500
0.1	50	50	500
10	5	95	500
15	0	100	500
17	0	100	500
17.1	80	20	500
22	80	20	500
Type of column	YMC-Pack ODS-AQ		
Column length	125 mm		
Internal diameter of column:	2 mm		
Temperature	40°C		

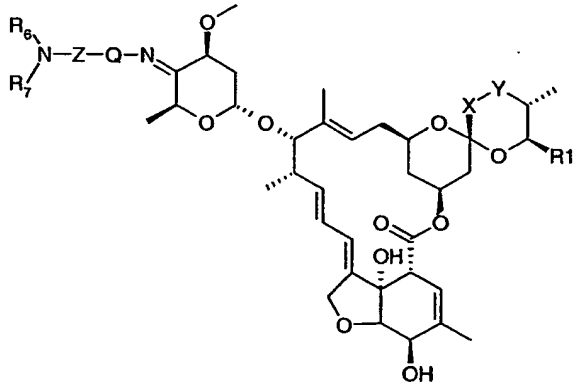
The YMC-Pack ODS-AQ column used for the chromatography of the compounds is manufactured by YMC, Alte Raesfelderstrasse 6, 46514 Schermbeck, Germany.

Table A1: Compounds of the formula (I) wherein R_1 is sec-butyl or isopropyl



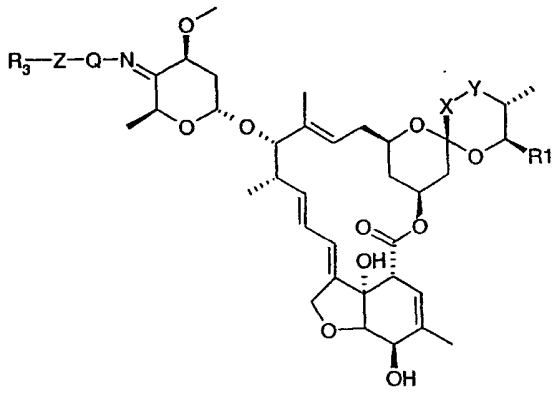
No.	R_3	Z	Q	X-Y	Retention time (min)	
					B1a	B1b
A1.1	methyl	-C(=O)-	NH	-CH=CH-	8.51	7.84
A1.2	phenyl	-C(=O)-	NH	-CH=CH-	9.93, 8.49	9.29

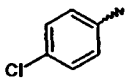
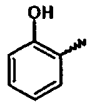
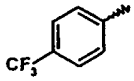
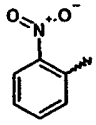
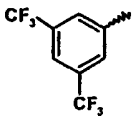
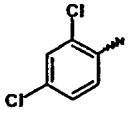
Table A2: Compounds of the formula (I) in which R_1 is sec-butyl or isopropyl.



No.	R_6	R_7	Z	Q	X-Y	Retention time (min)	
						B1a	B1b
A2.1	Phenyl	H	-C(=O)-	NH	-CH=CH-	9.98, 8.91	9.34, 8.27

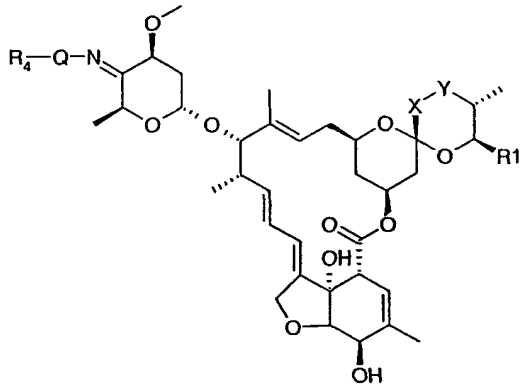
Table A3: Compounds of the formula (I) in which R_1 is sec-butyl or isopropyl .

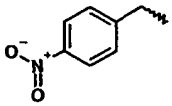
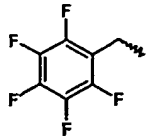
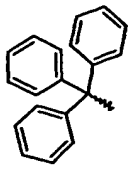
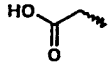


No.	R_3	Z	Q	X-Y	Retention time (min)	
					B1a	B1b
A3.1		-C(=O)-	NH	-CH=CH-	10.80	
A3.2	methyl	-C(=O)-	NH	-CH=CH-	7.59	
A3.3		-C(=O)-	NH	-CH=CH-	7.02	
A3.4	phenyl	-C(=O)-	NH	-CH=CH-	8.46	
A3.5		-C(=O)-	NH	-CH=CH-	9.99	
A3.6		-C(=O)-	NH	-CH=CH-	6.19	
A3.7	n-heptyl	-C(=O)-	NH	-CH=CH-	11.65	
A3.8		-C(=O)-	NH	-CH=CH-	9.18 8.48	
A3.9		-C(=O)-	NH	-CH=CH-	11.69	11.05
A3.10	benzyl	-C(=O)-	NH	-CH=CH-	9.56	8.97
A3.11		-C(=O)-	NH	-CH=CH-	10.58	9.98
A3.12	tert-Butyl	-C(=O)-	O	-CH=CH-	10.78, 10.95	10.04, 10.30

No.	R_3	Z	Q	X-Y	Retention time (min)	
					B1a	B1b
A3.13	n-undecyl	-C(=O)-	O	-CH=CH-	15.31	
A3.14	CH_3-CH=CH-	-C(=O)-	O	-CH=CH-	9.65, 9.92	
A3.15	ethyl	-C(=O)-	O	-CH=CH-	9.44, 7.71	

Table A4: Compounds of the formula (I) in which R_1 is sec-butyl or isopropyl



No.	R_4	Q	X-Y	Retention time (min)	
				B1a	B1b
A4.1	methyl	O	-CH=CH-	10.68	
A4.2	benzyl	O	-CH=CH-	12.07	
A4.3		O	-CH=CH-	11.58	
A4.4		O	-CH=CH-	12.49	
A4.5	allyl	O	-CH=CH-	11.34	
A4.6	tert-butyl	O	-CH=CH-	12.84	
A4.7		O	-CH=CH-	13.96	
A4.8		O	-CH=CH-	8.19	7.98

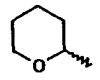
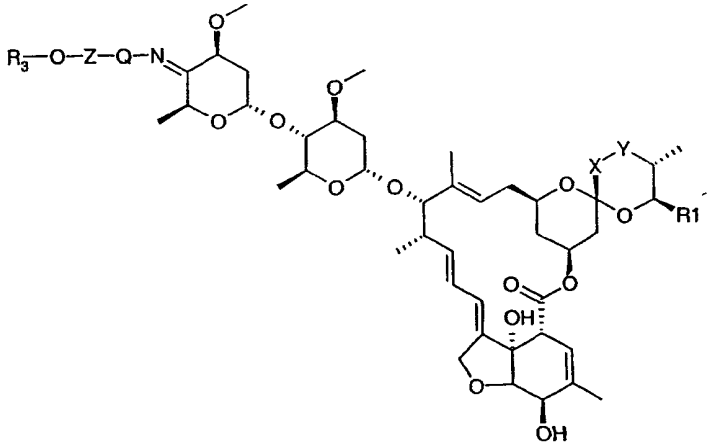
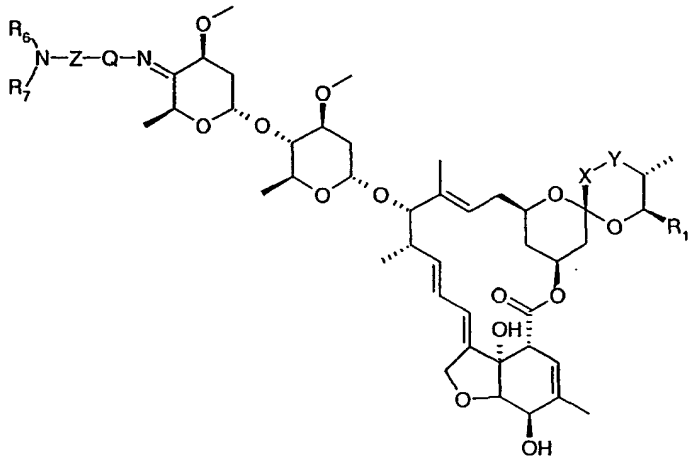
No.	R_4	Q	X-Y	Retention time (min)	
				B1a	B1b
A4.9	H	O	-CH=CH-	8.13	
A4.10	ethyl	O	-CH=CH-	11.11	
A4.11		O	-CH=CH-	11.05, 10.78	
A4.12	CH_3-O-CH_2-	O	-CH=CH-	9.83, 10.04	
A4.13	CH_3-O-CH_2-CH_2-O-CH_2-	O	-CH=CH-	9.96, 10.26	9.18, 9.50

Table A5: Compounds of the formula (I) in which R_1 is sec-butyl or isopropyl



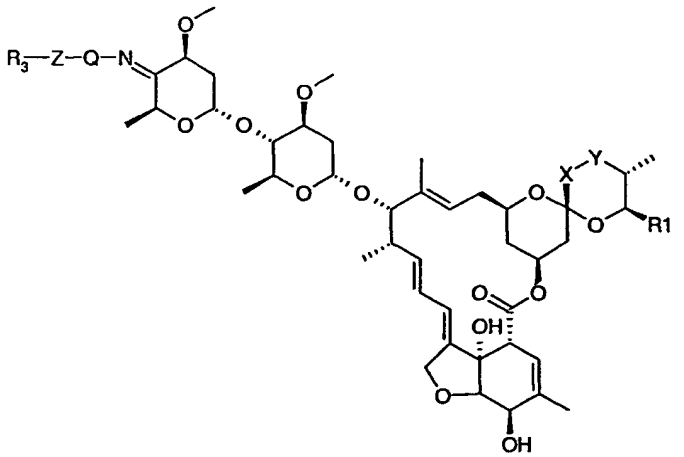
No.	R_3	Z	Q	X-Y	Retention time (min)	
					B1a	B1b
A5.1	phenyl	-C(=O)-	NH	-CH=CH-	10.77, 10.11	
A5.2	methyl	-C(=O)-	NH	-CH=CH-	9.33	
A5.3	tert-butyl	-C(=O)-	NH	-CH=CH-	10.83	
A5.4	methyl	-C(=O)-	O	-CH=CH-	10.24, 10.67	9.49, 9.92

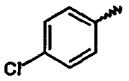
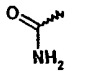
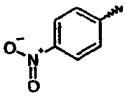
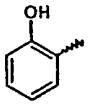
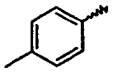
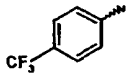
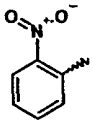
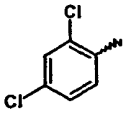
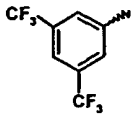
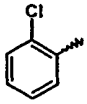
Table A6: Compounds of the formula (I) in which R_1 is sec-butyl or isopropyl



No.	R_6	R_7	Z	Q	X-Y	Retention time (min)	
						B1a	B1b
A6.1	phenyl	H	-C(=O)-	NH	-CH=CH-	9.76 11.28	9.12
A6.2	H	H	-C(=S)-	N-CH_3	-CH=CH-	5.55	5.44
A6.3	H	H	-C(=O)-	NH	-CH=CH-	8.59 7.68	7.84
A6.4	methyl	H	-C(=S)-	NH	-CH=CH-	10.74	10.04
A6.5	phenyl	H	-C(=S)-	NH	-CH=CH-	12.28	11.73
A6.6	tert-butyl	H	-C(=S)-	NH	-CH=CH-	12.32	12.11
A6.7	H	H	-C(=S)-	NH	-CH=CH-	9.71	9.49

Table A7: Compounds of the formula (I) in which R_1 is sec-butyl or isopropyl



No.	R_3	Z	Q	X-Y	Retention time (min)	
					B1a	B1b
A7.1		-C(=O)-	NH	-CH=CH-	10.96	
A7.2		-C(=O)-	NH	-CH=CH-	8.41	
A7.3	pyrid-4-yl	-C(=O)-	NH	-CH=CH-	8.48	7.82
A7.4	n-heptyl	-C(=O)-	NH	-CH=CH-	13.12	12.59
A7.5		-C(=O)-	NH	-CH=CH-	10.41	
A7.6		-C(=O)-	NH	-CH=CH-	9.51	
A7.7	phenyl	-C(=O)-	NH	-CH=CH-	10.09	
A7.8	methyl	-C(=O)-	NH	-CH=CH-	9.61	
A7.9		-C(=O)-	NH	-CH=CH-	10.57	
A7.10		-C(=O)-	NH	-CH=CH-	11.11	
A7.11		-C(=O)-	NH	-CH=CH-	10.45	
A7.12		-C(=O)-	NH	-CH=CH-	9.60	
A7.13		-C(=O)-	NH	-CH=CH-	10.72	
A7.14		-C(=O)-	NH	-CH=CH-	10.68	
A7.15		-C(=O)-	NH	-CH=CH-	12.21	
A7.16	N≡C-CH_2-	-C(=O)-	NH	-CH=CH-	9.33	
A7.17		-C(=O)-	NH	-CH=CH-	10.72	
A7.18	benzyl	-C(=O)-	NH	-CH=CH-	10.88	

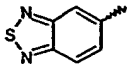
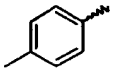
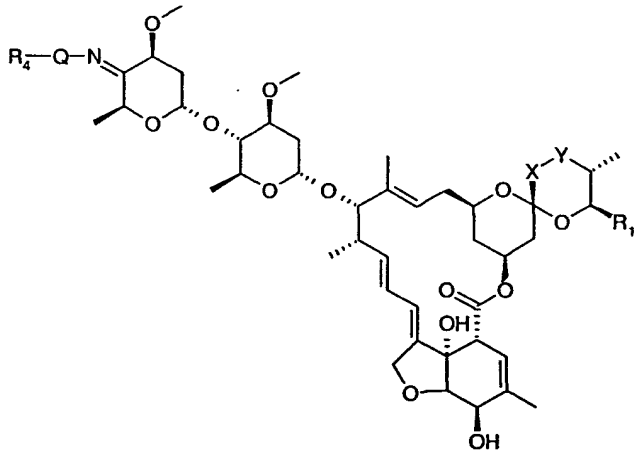
No.	R_3	Z	Q	X-Y	Retention time (min)	
					B1a	B1b
A7.19	2-naphthyl	-C(=O)-	NH	-CH=CH-	11.09	
A7.20		-C(=O)-	NH	-CH=CH-	10.61	
A7.21	methyl	$-SO_2-$	NH	-CH=CH-	9.01 8.16	8.32
A7.22		$-SO_2-$	NH	-CH=CH-	10.88 9.55	10.24
A7.23	methyl	-C(=O)-	O	-CH=CH-	10.45, 10.94	10.19
A7.24	n-undecyl	-C(=O)-	O	-CH=CH-	16.39, 18.02	
A7.25	tert-Butyl	-C(=O)-	O	-CH=CH-	11.73, 12.72	
A7.26	CH_3-CH=CH-	-C(=O)-	O	-CH=CH-	11.20, 11.88	10.45, 11.20
A7.27	ethyl	-C(=O)-	O	-CH=CH-	10.99, 11.65	10.29, 10.99
A7.28	H	-C(=O)-	O	-CH=CH-	11.41	

Table A8: Compounds of the formula (I) in which R_1 is sec-butyl or isopropyl



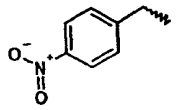
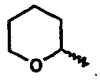
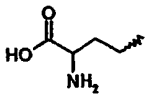
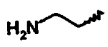
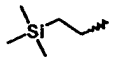
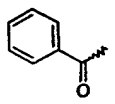
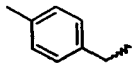
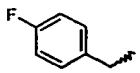
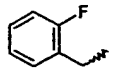
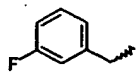
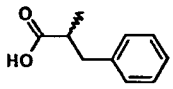
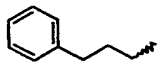
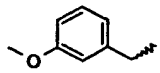
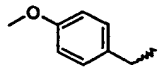
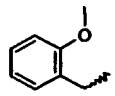
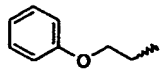
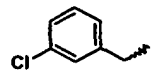
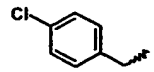
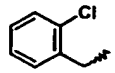
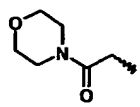
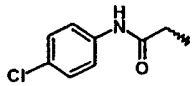
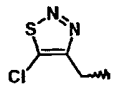
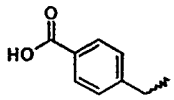
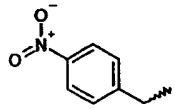
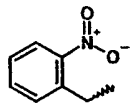
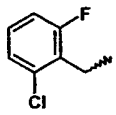
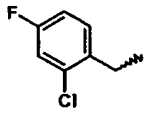
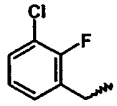
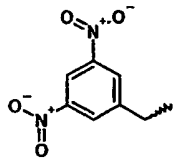
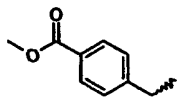
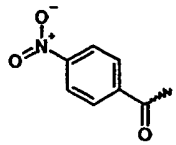
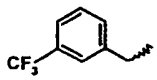
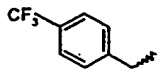
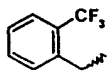
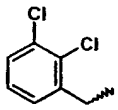
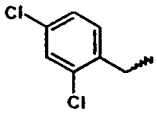
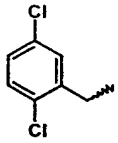
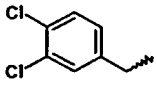
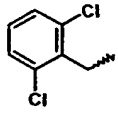
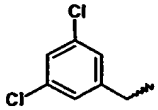
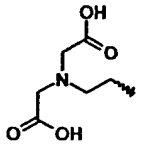
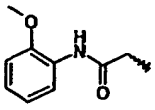
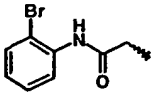
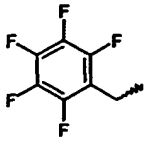
No.	R_4	Q	X-Y	Retention time (min)	
				B1a	B1b
A8.1	n-hexyl	O	-CH=CH-	16.18 15.38	
A8.2		O	-CH=CH-	12.87	
A8.3	allyl	O	-CH=CH-	12.31 11.98	
A8.4	ethyl	O	-CH=CH-	12.29 12.00	
A8.5	benzyl	O	-CH=CH-	12.38 12.11	11.79
A8.6	tert-butyl	O	-CH=CH-	13.23 12.86	12.64
A8.7	Methyl	O	-CH=CH-	11.77 11.36	
A8.8	H	O	-CH=CH-	9.29 8.84	
A8.9	H	O	$-CH_2-CH_2-$	10.22 10.74	10.03

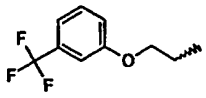
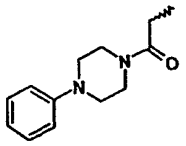
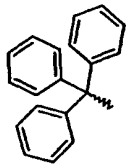
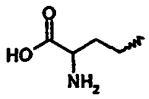
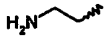
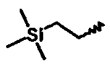
Table B: Compounds of the formula (I) in which R_2 is R_3-Z-, R_3-O-Z- or R_4-

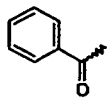
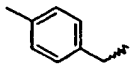
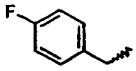
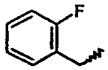
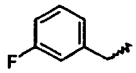
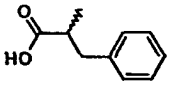
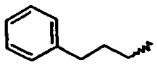
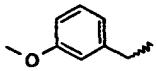
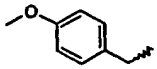
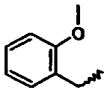
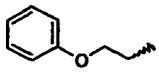
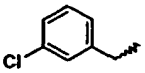
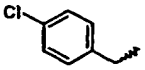
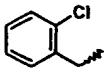
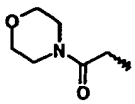
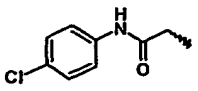
No.	R_3 or R_4	Q
B.1	Methyl	O
B.2	Ethyl	O
B.3	$-CH_2-C\equiv N$	O
B.4	Allyl	O
B.5	n-propyl	O
B.6	iso-propyl	O
B.7		O
B.8	benzyl	O
B.9	n-butyl	O
B.10	tert-butyl	O
B.11	s-butyl	O
B.12	iso-butyl	O
B.13		O
B.14		O

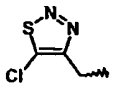
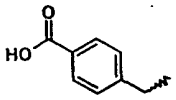
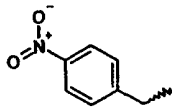
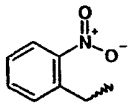
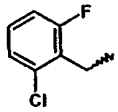
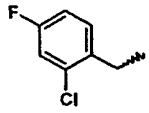
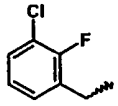
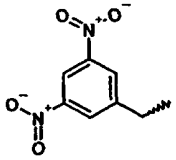
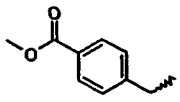
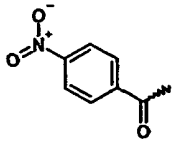
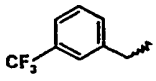
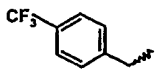
No.	R_3 or R_4	Q
B.15		O
B.16		O
B.17		O
B.18		O
B.19		O
B.20		O
B.21		O
B.22		O
B.23		O
B.24		O
B.25		O
B.26		O
B.27		O
B.28		O
B.29		O
B.30		O

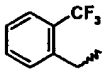
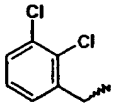
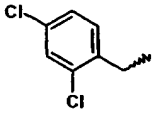
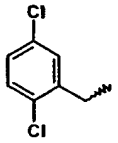
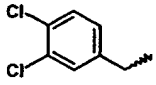
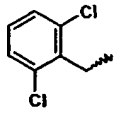
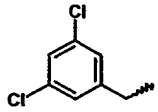
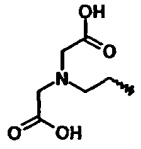
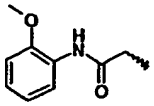
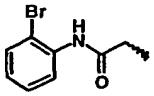
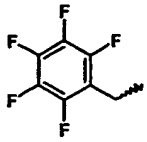
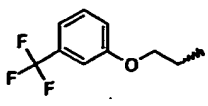
No.	R_3 or R_4	Q
B.31		O
B.32		O
B.33		O
B.34		O
B.35		O
B.36		O
B.37		O
B.38		O
B.39		O
B.40		O
B.41		O
B.42		O

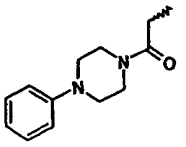
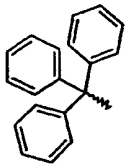
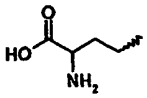
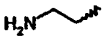
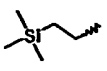
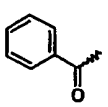
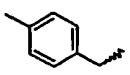
No.	R_3 or R_4	Q
B.43		O
B.44		O
B.45		O
B.46		O
B.47		O
B.48		O
B.49		O
B.50		O
B.51		O
B.52		O
B.53		O
B.54		O

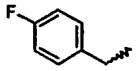
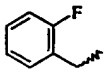
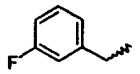
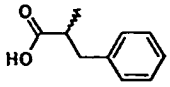
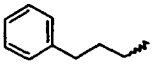
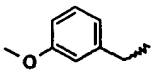
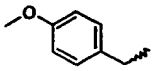
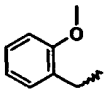
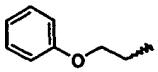
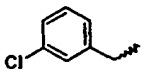
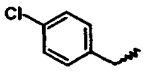
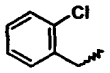
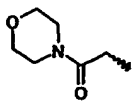
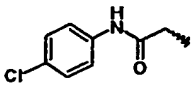
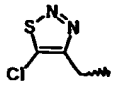
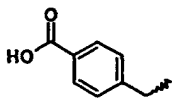
No.	R_3 or R_4	Q
B.55		O
B.56		O
B.57		O
B.58	H	NH
B.59	CH_3-C(=O)-	NH
B.60	H_2N-C(=O)-	NH
B.61	HO-CH_2-CH_2-	NH
B.62	N≡C-CH_2-CH_2-	NH
B.63	methyl	NH
B.64	ethyl	NH
B.65	-CH_2-C≡N	NH
B.66	allyl	NH
B.67	n-propyl	NH
B.68	iso-propyl	NH
B.69		NH
B.70	benzyl	NH
B.71	n-butyl	NH
B.72	tert-butyl	NH
B.73	s-butyl	NH
B.74	iso-butyl	NH
B.75		NH
B.76		NH
B.77		NH

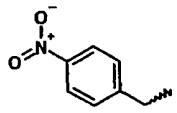
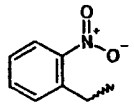
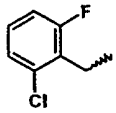
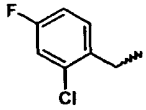
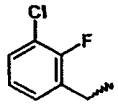
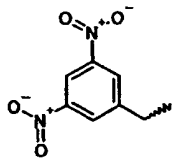
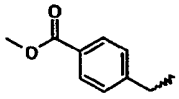
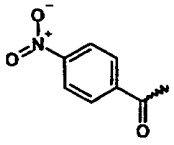
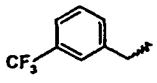
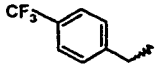
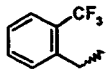
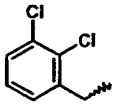
No.	R_3 or R_4	Q
B.78		NH
B.79		NH
B.80		NH
B.81		NH
B.82		NH
B.83		NH
B.84		NH
B.85		NH
B.86		NH
B.87		NH
B.88		NH
B.89		NH
B.90		NH
B.91		NH
B.92		NH
B.93		NH

No.	R_3 or R_4	Q
B.94		NH
B.95		NH
B.96		NH
B.97		NH
B.98		NH
B.99		NH
B.100		NH
B.101		NH
B.102		NH
B.103		NH
B.104		NH
B.105		NH

No.	R_3 or R_4	Q
B.106		NH
B.107		NH
B.108		NH
B.109		NH
B.110		NH
B.111		NH
B.112		NH
B.113		NH
B.114		NH
B.115		NH
B.116		NH
B.117		NH

No.	R_3 or R_4	Q
B.118		NH
B.119		NH
B.120	H	N-CH_3
B.121	CH_3-C(=O)-	N-CH_3
B.122	H_2N-C(=O)-	N-CH_3
B.123	HO-CH_2-CH_2-	N-CH_3
B.124	N≡C-CH_2-CH_2-	N-CH_3
B.125	methyl	N-CH_3
B.126	ethyl	N-CH_3
B.127	-CH_2-C≡N	N-CH_3
B.128	allyl	N-CH_3
B.129	n-propyl	N-CH_3
B.130	iso-propyl	N-CH_3
B.131		N-CH_3
B.132	benzyl	N-CH_3
B.133	n-butyl	N-CH_3
B.134	tert-butyl	N-CH_3
B.135	s-butyl	N-CH_3
B.136	iso-butyl	N-CH_3
B.137		N-CH_3
B.138		N-CH_3
B.139		N-CH_3
B.140		N-CH_3
B.141		N-CH_3

No.	R_3 or R_4	Q
B.142		N-CH_3
B.143		N-CH_3
B.144		N-CH_3
B.145		N-CH_3
B.146		N-CH_3
B.147		N-CH_3
B.148		N-CH_3
B.149		N-CH_3
B.150		N-CH_3
B.151		N-CH_3
B.152		N-CH_3
B.153		N-CH_3
B.154		N-CH_3
B.155		N-CH_3
B.156		N-CH_3
B.157		N-CH_3

No.	R_3 or R_4	Q
B.158		N-CH_3
B.159		N-CH_3
B.160		N-CH_3
B.161		N-CH_3
B.162		N-CH_3
B.163		N-CH_3
B.164		N-CH_3
B.165		N-CH_3
B.166		N-CH_3
B.167		N-CH_3
B.168		N-CH_3
B.169		N-CH_3

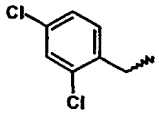
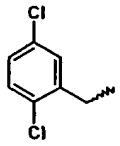
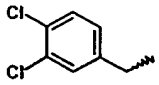
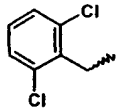
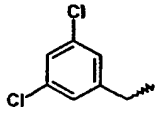
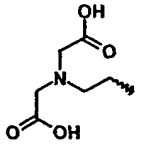
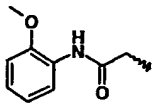
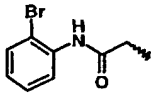
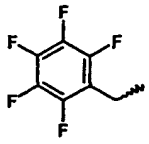
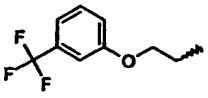
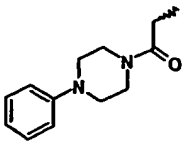
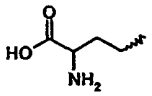
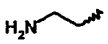
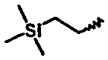
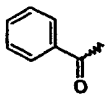
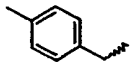
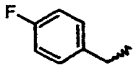
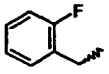
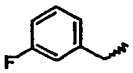
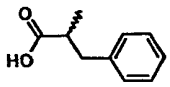
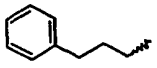
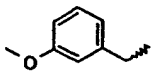
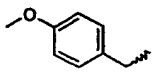
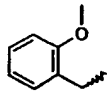
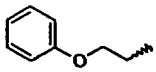
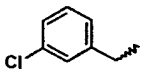
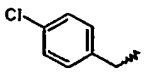
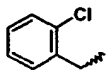
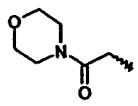
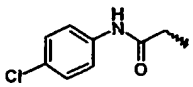
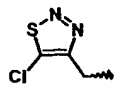
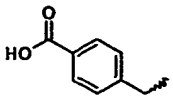
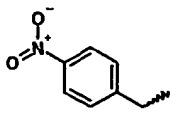
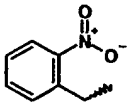
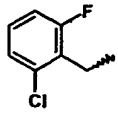
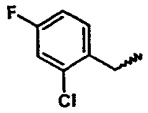
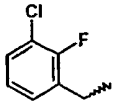
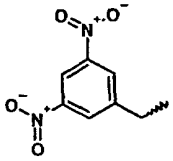
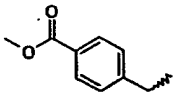
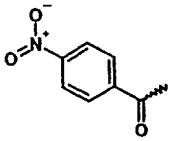
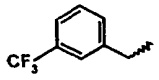
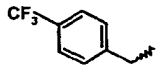
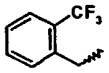
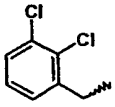
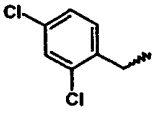
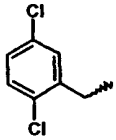
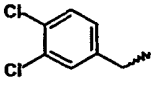
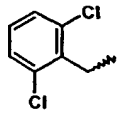
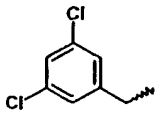
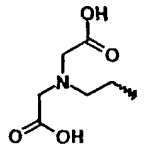
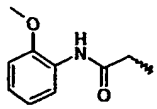
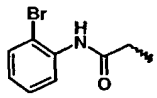
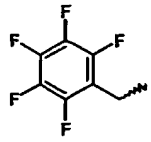
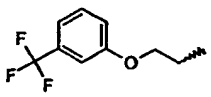
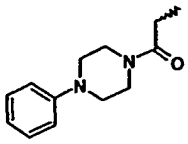
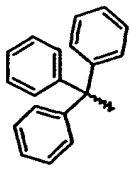
No.	R_3 or R_4	Q
B.170		N-CH_3
B.171		N-CH_3
B.172		N-CH_3
B.173		N-CH_3
B.174		N-CH_3
B.175		N-CH_3
B.176		N-CH_3
B.177		N-CH_3
B.178		N-CH_3
B.179		N-CH_3
B.180		N-CH_3

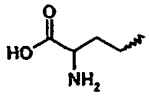
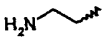
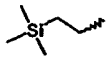
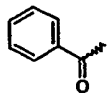
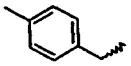
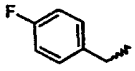
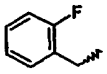
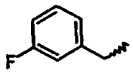
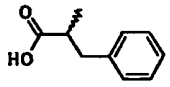
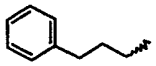
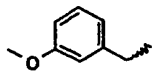
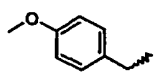
Table C: Compounds of the formula (I) in which R_2 is -Z-N(R_6)R_7

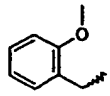
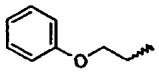
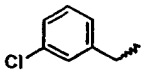
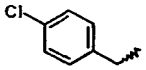
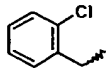
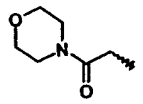
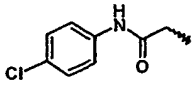
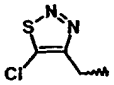
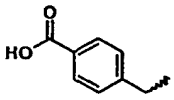
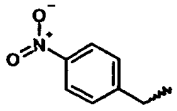
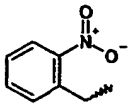
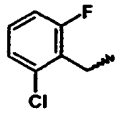
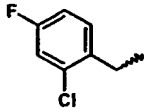
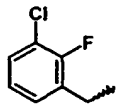
No.	R_6	R_7	Q
C.1	methyl	H	O
C.2	ethyl	H	O
C.3	$-CH_2-C\equiv N$	H	O
C.4	allyl	H	O
C.5	n-propyl	H	O
C.6	iso-propyl	H	O
C.7		H	O
C.8	benzyl	H	O
C.9	n-butyl	H	O
C.10	tert-butyl	H	O
C.11	s-butyl	H	O
C.12	iso-butyl	H	O
C.13		H	O
C.14		H	O
C.15		H	O
C.16		H	O
C.17		H	O
C.18		H	O
C.19		H	O
C.20		H	O
C.21		H	O
C.22		H	O

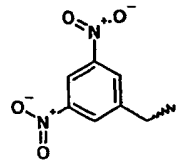
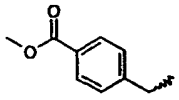
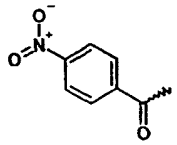
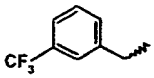
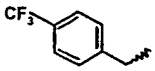
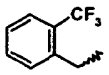
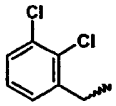
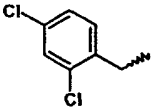
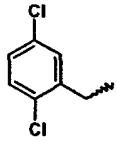
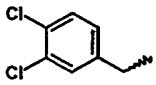
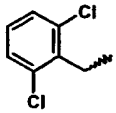
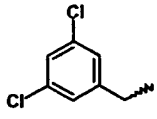
No.	R_6	R_7	Q
C.23		H	O
C.24		H	O
C.25		H	O
C.26		H	O
C.27		H	O
C.28		H	O
C.29		H	O
C.30		H	O
C.31		H	O
C.32		H	O
C.33		H	O
C.34		H	O
C.35		H	O
C.36		H	O

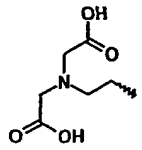
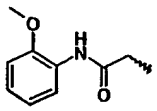
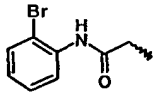
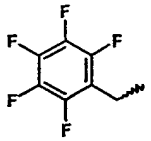
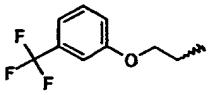
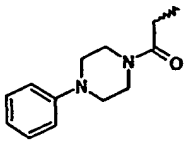
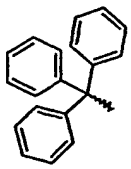
No.	R_6	R_7	Q
C.37		H	O
C.38		H	O
C.39		H	O
C.40		H	O
C.41		H	O
C.42		H	O
C.43		H	O
C.44		H	O
C.45		H	O
C.46		H	O
C.47		H	O
C.48		H	O

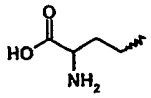
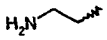
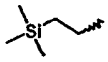
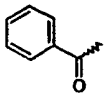
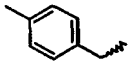
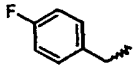
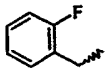
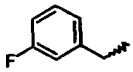
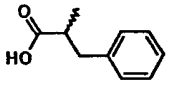
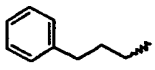
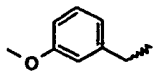
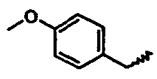
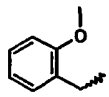
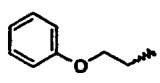
No.	R_6	R_7	Q
C.49		H	O
C.50		H	O
C.51		H	O
C.52		H	O
C.53		H	O
C.54		H	O
C.55		H	O
C.56		H	O
C.57		H	O
C.58	H	H	NH
C.59	CH_3-C(=O)-	H	NH
C.60	H_2N-C(=O)-	H	NH
C.61	HO-CH_2-CH_2-	H	NH
C.62	N≡C-CH_2-CH_2-	H	NH
C.63	methyl	H	NH
C.64	ethyl	H	NH

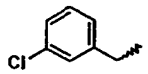
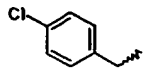
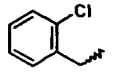
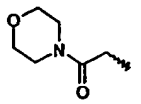
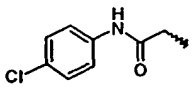
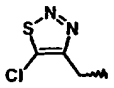
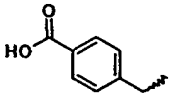
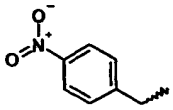
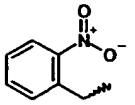
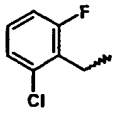
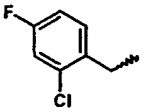
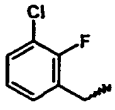
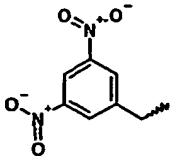
No.	R_6	R_7	Q
C.65	$-CH_2-C\equiv N$	H	NH
C.66	allyl	H	NH
C.67	n-propyl	H	NH
C.68	iso-propyl	H	NH
C.69		H	NH
C.70	benzyl	H	NH
C.71	n-butyl	H	NH
C.72	tert-butyl	H	NH
C.73	s-butyl	H	NH
C.74	iso-butyl	H	NH
C.75		H	NH
C.76		H	NH
C.77		H	NH
C.78		H	NH
C.79		H	NH
C.80		H	NH
C.81		H	NH
C.82		H	NH
C.83		H	NH
C.84		H	NH
C.85		H	NH
C.86		H	NH

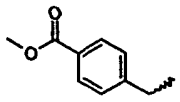
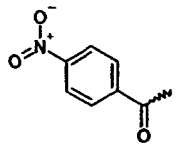
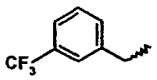
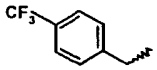
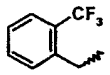
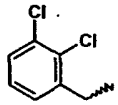
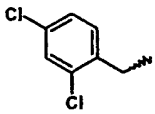
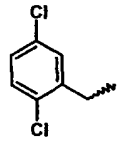
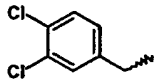
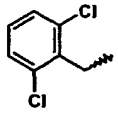
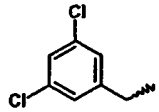
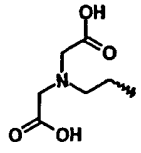
No.	R_6	R_7	Q
C.87		H	NH
C.88		H	NH
C.89		H	NH
C.90		H	NH
C.91		H	NH
C.92		H	NH
C.93		H	NH
C.94		H	NH
C.95		H	NH
C.96		H	NH
C.97		H	NH
C.98		H	NH
C.99		H	NH
C.100		H	NH

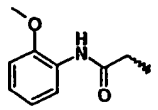
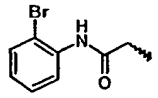
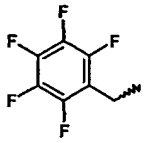
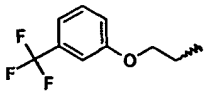
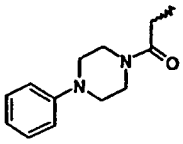
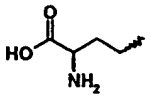
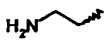
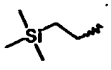
No.	R_6	R_7	Q
C.101		H	NH
C.102		H	NH
C.103		H	NH
C.104		H	NH
C.105		H	NH
C.106		H	NH
C.107		H	NH
C.108		H	NH
C.109		H	NH
C.110		H	NH
C.111		H	NH
C.112		H	NH

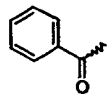
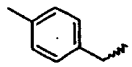
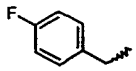
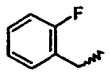
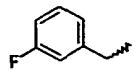
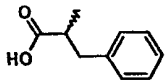
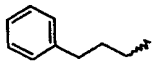
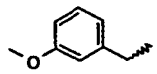
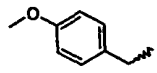
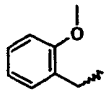
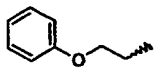
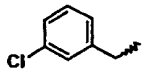
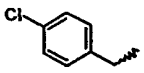
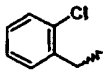
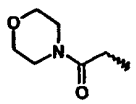
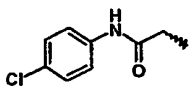
No.	R_6	R_7	Q
C.113		H	NH
C.114		H	NH
C.115		H	NH
C.116		H	NH
C.117		H	NH
C.118		H	NH
C.119		H	NH
C.120	H	H	N-CH_3
C.121	CH_3-C(=O)-	H	N-CH_3
C.122	H_2N-C(=O)-	H	N-CH_3
C.123	HO-CH_2-CH_2-	H	N-CH_3
C.124	N≡C-CH_2-CH_2-	H	N-CH_3
C.125	methyl	H	N-CH_3
C.126	ethyl	H	N-CH_3
C.127	-CH_2-C≡N	H	N-CH_3
C.128	allyl	H	N-CH_3
C.129	n-propyl	H	N-CH_3
C.130	iso-propyl	H	N-CH_3

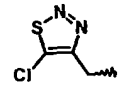
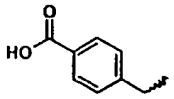
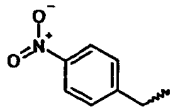
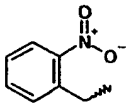
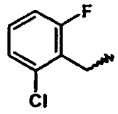
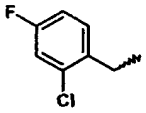
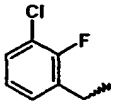
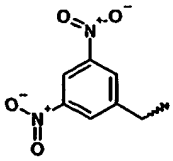
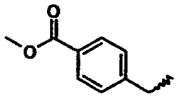
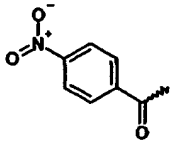
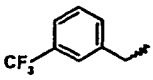
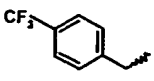
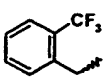
No.	R_6	R_7	Q
C.131		H	N-CH_3
C.132	benzyl	H	N-CH_3
C.133	n-butyl	H	N-CH_3
C.134	tert-butyl	H	N-CH_3
C.135	s-butyl	H	N-CH_3
C.136	iso-butyl	H	N-CH_3
C.137		H	N-CH_3
C.138		H	N-CH_3
C.139		H	N-CH_3
C.140		H	N-CH_3
C.141		H	N-CH_3
C.142		H	N-CH_3
C.143		H	N-CH_3
C.144		H	N-CH_3
C.145		H	N-CH_3
C.146		H	N-CH_3
C.147		H	N-CH_3
C.148		H	N-CH_3
C.149		H	N-CH_3
C.150		H	N-CH_3

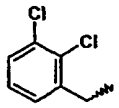
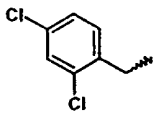
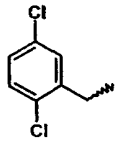
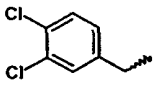
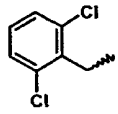
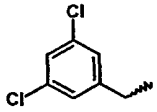
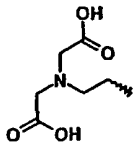
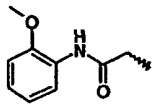
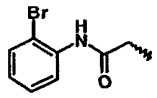
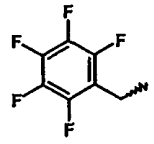
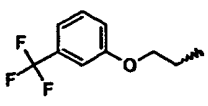
No.	R_6	R_7	Q
C.151		H	N-CH_3
C.152		H	N-CH_3
C.153		H	N-CH_3
C.154		H	N-CH_3
C.155		H	N-CH_3
C.156		H	N-CH_3
C.157		H	N-CH_3
C.158		H	N-CH_3
C.159		H	N-CH_3
C.160		H	N-CH_3
C.161		H	N-CH_3
C.162		H	N-CH_3
C.163		H	N-CH_3

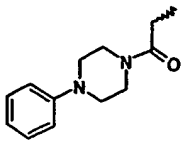
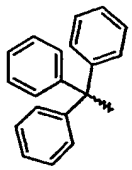
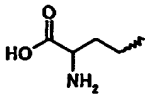
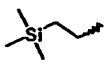
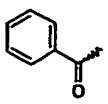
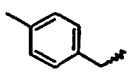
No.	R_6	R_7	Q
C.164		H	N-CH_3
C.165		H	N-CH_3
C.166		H	N-CH_3
C.167		H	N-CH_3
C.168		H	N-CH_3
C.169		H	N-CH_3
C.170		H	N-CH_3
C.171		H	N-CH_3
C.172		H	N-CH_3
C.173		H	N-CH_3
C.174		H	N-CH_3
C.175		H	N-CH_3

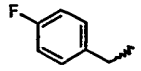
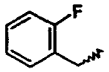
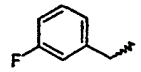
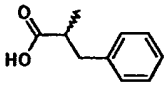
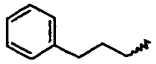
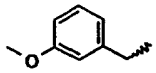
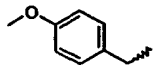
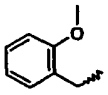
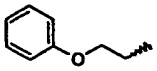
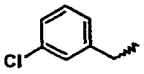
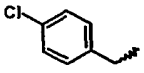
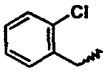
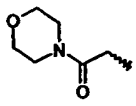
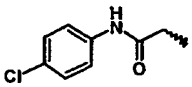
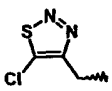
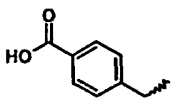
No.	R_6	R_7	Q
C.176		H	N-CH_3
C.177		H	N-CH_3
C.178		H	N-CH_3
C.179		H	N-CH_3
C.180		H	N-CH_3
C.181	methyl	methyl	O
C.182	ethyl	methyl	O
C.183	-CH_2-C≡N	methyl	O
C.184	allyl	methyl	O
C.185	n-propyl	methyl	O
C.186	iso-propyl	methyl	O
C.187		methyl	O
C.188	benzyl	methyl	O
C.189	n-butyl	methyl	O
C.190	tert-butyl	methyl	O
C.191	s-butyl	methyl	O
C.192	iso-butyl	methyl	O
C.193		methyl	O
C.194		methyl	O
C.195		methyl	O

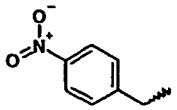
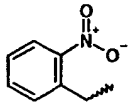
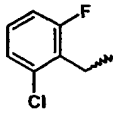
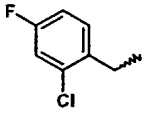
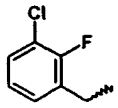
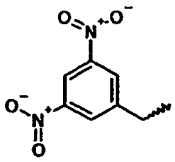
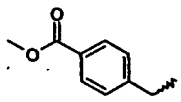
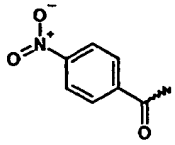
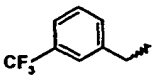
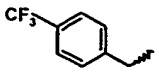
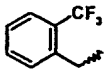
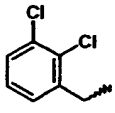
No.	R_6	R_7	Q
C.196		methyl	O
C.197		methyl	O
C.198		methyl	O
C.199		methyl	O
C.200		methyl	O
C.201		methyl	O
C.202		methyl	O
C.203		methyl	O
C.204		methyl	O
C.205		methyl	O
C.206		methyl	O
C.207		methyl	O
C.208		methyl	O
C.209		methyl	O
C.210		methyl	O
C.211		methyl	O

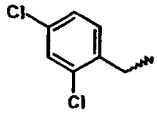
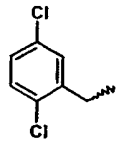
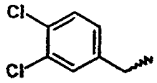
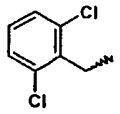
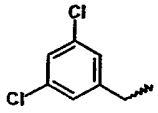
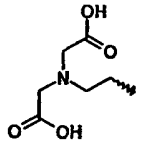
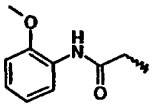
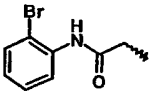
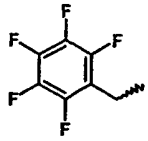
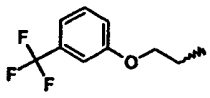
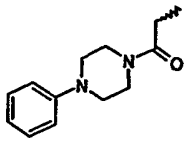
No.	R_6	R_7	Q
C.212		methyl	O
C.213		methyl	O
C.214		methyl	O
C.215		methyl	O
C.216		methyl	O
C.217		methyl	O
C.218		methyl	O
C.219		methyl	O
C.220		methyl	O
C.221		methyl	O
C.222		methyl	O
C.223		methyl	O
C.224		methyl	O

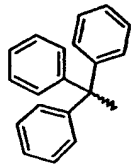
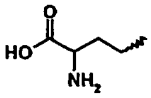
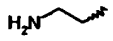
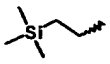
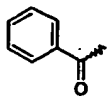
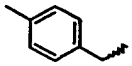
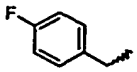
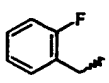
No.	R_6	R_7	Q
C.225		methyl	O
C.226		methyl	O
C.227		methyl	O
C.228		methyl	O
C.229		methyl	O
C.230		methyl	O
C.231		methyl	O
C.232		methyl	O
C.233		methyl	O
C.234		methyl	O
C.235		methyl	O

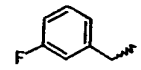
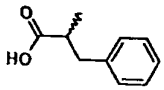
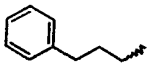
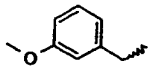
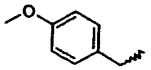
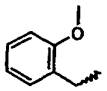
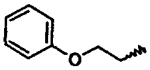
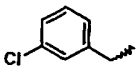
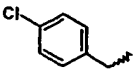
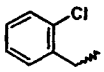
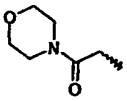
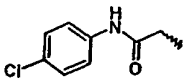
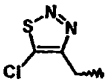
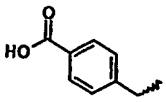
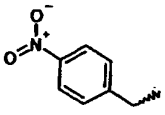
No.	R_6	R_7	Q
C.236		methyl	O
C.237		methyl	O
C.238	H	methyl	NH
C.239	CH_3-C(=O)-	methyl	NH
C.240	H_2N-C(=O)-	methyl	NH
C.241	HO-CH_2-CH_2-	methyl	NH
C.242	N≡C-CH_2-CH_2-	methyl	NH
C.243	methyl	methyl	NH
C.244	ethyl	methyl	NH
C.245	-CH_2-C≡N	methyl	NH
C.246	allyl	methyl	NH
C.247	n-propyl	methyl	NH
C.248	iso-propyl	methyl	NH
C.249		methyl	NH
C.250	benzyl	methyl	NH
C.251	n-butyl	methyl	NH
C.252	tert-butyl	methyl	NH
C.253	s-butyl	methyl	NH
C.254	iso-butyl	methyl	NH
C.255		methyl	NH
C.256		methyl	NH
C.257		methyl	NH
C.258		methyl	NH
C.259		methyl	NH

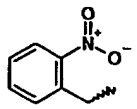
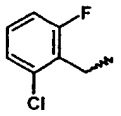
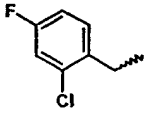
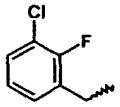
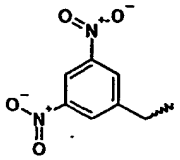
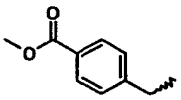
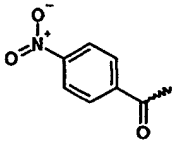
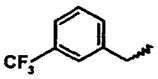
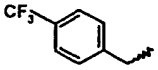
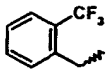
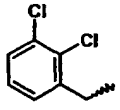
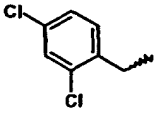
No.	R_6	R_7	Q
C.260		methyl	NH
C.261		methyl	NH
C.262		methyl	NH
C.263		methyl	NH
C.264		methyl	NH
C.265		methyl	NH
C.266		methyl	NH
C.267		methyl	NH
C.268		methyl	NH
C.269		methyl	NH
C.270		methyl	NH
C.271		methyl	NH
C.272		methyl	NH
C.273		methyl	NH
C.274		methyl	NH
C.275		methyl	NH

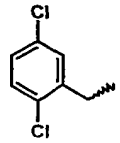
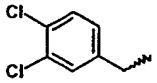
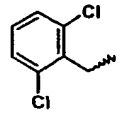
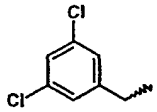
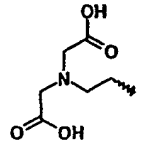
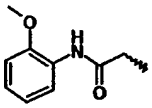
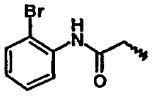
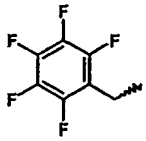
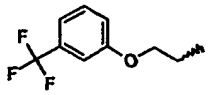
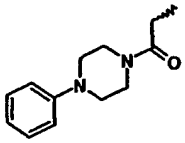
No.	R_6	R_7	Q
C.276		methyl	NH
C.277		methyl	NH
C.278		methyl	NH
C.279		methyl	NH
C.280		methyl	NH
C.281		methyl	NH
C.282		methyl	NH
C.283		methyl	NH
C.284		methyl	NH
C.285		methyl	NH
C.286		methyl	NH
C.287		methyl	NH

No.	R_6	R_7	Q
C.288		methyl	NH
C.289		methyl	NH
C.290		methyl	NH
C.291		methyl	NH
C.292		methyl	NH
C.293		methyl	NH
C.294		methyl	NH
C.295		methyl	NH
C.296		methyl	NH
C.297		methyl	NH
C.298		methyl	NH

No.	R_6	R_7	Q
C.299		methyl	NH
C.300	H	methyl	N-CH_3
C.301	CH_3-C(=O)-	methyl	N-CH_3
C.302	H_2N-C(=O)-	methyl	N-CH_3
C.303	HO-CH_2-CH_2-	methyl	N-CH_3
C.304	N≡C-CH_2-CH_2-	methyl	N-CH_3
C.305	methyl	methyl	N-CH_3
C.306	ethyl	methyl	N-CH_3
C.307	-CH_2-C≡N	methyl	N-CH_3
C.308	allyl	methyl	N-CH_3
C.309	n-propyl	methyl	N-CH_3
C.310	iso-propyl	methyl	N-CH_3
C.311		methyl	N-CH_3
C.312	benzyl	methyl	N-CH_3
C.313	n-butyl	methyl	N-CH_3
C.314	tert-butyl	methyl	N-CH_3
C.315	s-butyl	methyl	N-CH_3
C.316	iso-butyl	methyl	N-CH_3
C.317		methyl	N-CH_3
C.318		methyl	N-CH_3
C.319		methyl	N-CH_3
C.320		methyl	N-CH_3
C.321		methyl	N-CH_3
C.322		methyl	N-CH_3
C.323		methyl	N-CH_3

No.	R_6	R_7	Q
C.324		methyl	N-CH_3
C.325		methyl	N-CH_3
C.326		methyl	N-CH_3
C.327		methyl	N-CH_3
C.328		methyl	N-CH_3
C.329		methyl	N-CH_3
C.330		methyl	N-CH_3
C.331		methyl	N-CH_3
C.332		methyl	N-CH_3
C.333		methyl	N-CH_3
C.334		methyl	N-CH_3
C.335		methyl	N-CH_3
C.336		methyl	N-CH_3
C.337		methyl	N-CH_3
C.338		methyl	N-CH_3

No.	R_6	R_7	Q
C.339		methyl	N-CH_3
C.340		methyl	N-CH_3
C.341		methyl	N-CH_3
C.342		methyl	N-CH_3
C.343		methyl	N-CH_3
C.344		methyl	N-CH_3
C.345		methyl	N-CH_3
C.346		methyl	N-CH_3
C.347		methyl	N-CH_3
C.348		methyl	N-CH_3
C.349		methyl	N-CH_3
C.350		methyl	N-CH_3

No.	R_6	R_7	Q
C.351		methyl	N-CH_3
C.352		methyl	N-CH_3
C.353		methyl	N-CH_3
C.354		methyl	N-CH_3
C.355		methyl	N-CH_3
C.356		methyl	N-CH_3
C.357		methyl	N-CH_3
C.358		methyl	N-CH_3
C.359		methyl	N-CH_3
C.360		methyl	N-CH_3
C.361	-CH_2-CH_2-CH_2-CH_2-		O
C.362	-CH_2-CH_2-CH_2-CH_2-CH_2-		O
C.363	-CH_2-CH_2-CH_2-CH_2-CH_2-CH_2-		O
C.364	-CH_2-CH_2-O-CH_2-CH_2-		O
C.365	-CH_2-CH_2-S-CH_2-CH_2-		O

No.	R_6	R_7	Q
C.366	$-CH_2-CH_2-SO_2-CH_2-CH_2-$		O
C.367	$-CH_2-CH_2-S(=O)-CH_2-CH_2-$		O
C.368	$-CH_2-CH_2-NH-CH_2-CH_2-$		O
C.369	$-CH_2-CH_2-N(CH_3)-CH_2-CH_2-$		O
C.370	$-CH_2-CH_2-N[-C(=O)-CH_3]-CH_2-CH_2-$		O
C.371	$-CH_2-CH_2-CH_2-CH_2-$		NH
C.372	$-CH_2-CH_2-CH_2-CH_2-CH_2-$		NH
C.373	$-CH_2-CH_2-CH_2-CH_2-CH_2-CH_2-$		NH
C.374	$-CH_2-CH_2-O-CH_2-CH_2-$		NH
C.375	$-CH_2-CH_2-S-CH_2-CH_2-$		NH
C.376	$-CH_2-CH_2-SO_2-CH_2-CH_2-$		NH
C.377	$-CH_2-CH_2-S(=O)-CH_2-CH_2-$		NH
C.378	$-CH_2-CH_2-NH-CH_2-CH_2-$		NH
C.379	$-CH_2-CH_2-N(CH_3)-CH_2-CH_2-$		NH
C.380	$-CH_2-CH_2-N[-C(=O)-CH_3]-CH_2-CH_2-$		NH
C.381	$-CH_2-CH_2-CH_2-CH_2-$		$N-CH_3$
C.382	$-CH_2-CH_2-CH_2-CH_2-CH_2-$		$N-CH_3$
C.383	$-CH_2-CH_2-CH_2-CH_2-CH_2-CH_2-$		$N-CH_3$
C.384	$-CH_2-CH_2-O-CH_2-CH_2-$		$N-CH_3$
C.385	$-CH_2-CH_2-S-CH_2-CH_2-$		$N-CH_3$
C.386	$-CH_2-CH_2-SO_2-CH_2-CH_2-$		$N-CH_3$
C.387	$-CH_2-CH_2-S(=O)-CH_2-CH_2-$		$N-CH_3$
C.388	$-CH_2-CH_2-NH-CH_2-CH_2-$		$N-CH_3$
C.389	$-CH_2-CH_2-N(CH_3)-CH_2-CH_2-$		$N-CH_3$
C.390	$-CH_2-CH_2-N[-C(=O)-CH_3]-CH_2-CH_2-$		$N-CH_3$

Table D: Compounds of the formula (I) in which Q is NR_5 and R_2 is R_4

No.	R_4	R_5	Q
D.1	$-CH_2-CH_2-CH_2-CH_2-$		$N-R_5$
D.2	$-CH_2-CH_2-CH_2-CH_2-CH_2-$		$N-R_5$
D.3	$-CH_2-CH_2-CH_2-CH_2-CH_2-CH_2-$		$N-R_5$
D.4	$-CH_2-CH_2-O-CH_2-CH_2-$		$N-R_5$
D.5	$-CH_2-CH_2-S-CH_2-CH_2-$		$N-R_5$
D.6	$-CH_2-CH_2-SO_2-CH_2-CH_2-$		$N-R_5$
D.7	$-CH_2-CH_2-S(=O)-CH_2-CH_2-$		$N-R_5$
D.8	$-CH_2-CH_2-NH-CH_2-CH_2-$		$N-R_5$

No.	R_4	R_5	Q
D.9	$-CH_2-CH_2-N(CH_3)-CH_2-CH_2-$		N-R_5
D.10	$-CH_2-CH_2-N[-C(=O)-CH_3]-CH_2-CH_2-$		N-R_5

Table 1: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 0, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 2: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 1, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 3: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 0, X-Y is -CH_2CH_2-, Z is -C(=O)-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 4: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 1, X-Y is -CH_2CH_2-, Z is -C(=O)-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 5: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 0, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 6: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 1, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 7: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 0, X-Y is -CH_2CH_2-, Z is -C(=S)-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 8: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 1, X-Y is -CH_2CH_2-, Z is -C(=S)-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 9: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 0, X-Y is -CH=CH-, Z is -SO_2-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 10: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 1, X-Y is -CH=CH-, Z is -SO_2-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 11: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 0, X-Y is $-CH_2CH_2-$, Z is $-SO_2-$, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 12: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 1, X-Y is $-CH_2CH_2-$, Z is $-SO_2-$, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 13: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 0, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 14: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 1, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 15: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 0, X-Y is $-CH_2CH_2-$, Z is -C(=O)-, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 16: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 1, X-Y is $-CH_2CH_2-$, Z is -C(=O)-, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 17: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 0, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 18: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 1, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 19: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 0, X-Y is $-CH_2CH_2-$, Z is -C(=S)-, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 20: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 1, X-Y is $-CH_2CH_2-$, Z is -C(=S)-, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 21: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 0, X-Y is -CH=CH-, Z is $-SO_2-$, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 22: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 1, X-Y is -CH=CH-, Z is $-SO_2-$, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 23: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 0, X-Y is $-CH_2CH_2-$, Z is $-SO_2-$, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 24: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 1, X-Y is $-CH_2CH_2-$, Z is $-SO_2-$, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 25: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 0, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 26: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 1, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 27: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 0, X-Y is $-CH_2CH_2-$, Z is -C(=O)-, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 28: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 1, X-Y is $-CH_2CH_2-$, Z is -C(=O)-, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 29: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 0, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 30: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 1, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 31: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 0, X-Y is $-CH_2CH_2-$, Z is -C(=S)-, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 32: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 1, X-Y is $-CH_2CH_2-$, Z is -C(=S)-, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 33: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 0, X-Y is -CH=CH-, Z is $-SO_2-$, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 34: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 1, X-Y is -CH=CH-, Z is $-SO_2-$, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 35: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 0, X-Y is $-CH_2CH_2-$, Z is $-SO_2-$, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 36: Compounds of the formula (I) in which R_2 is R_3-O-Z-, n is 1, X-Y is $-CH_2CH_2-$, Z is $-SO_2-$, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 37: Compounds of the formula (I) in which R_2 is $(R_6)(R_7)$N-Z-, n is 0, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is sec-butyl or isopropyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 38: Compounds of the formula (I) in which R2 is $(R_6)(R_7)$N-Z-, n is 1, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is sec-butyl or isopropyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 39: Compounds of the formula (I) in which R_2 is -Z-N$(R_6)(R_7)$, n is 0, X-Y is $-CH_2CH_2-$, Z is -C(=O)-, R_1 is sec-butyl or isopropyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 40: Compounds of the formula (I) in which R_2 is -Z-N$(R_6)(R_7)$, n is 1, X-Y is $-CH_2CH_2-$, Z is -C(=O)-, R_1 is sec-butyl or isopropyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 41: Compounds of the formula (I) in which R_2 is -Z-N$(R_6)(R_7)$, n is 0, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is sec-butyl or isopropyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 42: Compounds of the formula (I) in which R_2 is -Z-N$(R_6)(R_7)$, n is 1, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is sec-butyl or isopropyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 43: Compounds of the formula (I) in which R_2 is -Z-N$(R_6)(R_7)$, n is 0, X-Y is $-CH_2CH_2-$, Z is -C(=S)-, R_1 is sec-butyl or isopropyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 44: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 1, X-Y is -CH_2CH_2-, Z is -C(=S)-, R_1 is sec-butyl or isopropyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 45: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 0, X-Y is -CH=CH-, Z is -SO_2-, R_1 is sec-butyl or isopropyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 46: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 1, X-Y is -CH=CH-, Z is -SO_2-, R_1 is sec-butyl or isopropyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 47: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 0, X-Y is -CH_2CH_2-, Z is -SO_2-, R_1 is sec-butyl or isopropyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 48: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 1, X-Y is -CH_2CH_2-, Z is -SO_2-, R_1 is sec-butyl or isopropyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 49: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 0, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is cyclohexyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 50: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 1, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is cyclohexyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 51: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 0, X-Y is -CH_2CH_2-, Z is -C(=O)-, R_1 is cyclohexyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 52: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 1, X-Y is -CH_2CH_2-, Z is -C(=O)-, R_1 is cyclohexyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 53: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 0, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is cyclohexyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 54: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 1, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is cyclohexyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 55: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 0, X-Y is -CH_2CH_2-, Z is -C(=S)-, R_1 is cyclohexyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 56: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 1, X-Y is -CH_2CH_2-, Z is -C(=S)-, R_1 is cyclohexyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 57: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 0, X-Y is -CH=CH-, Z is -SO_2-, R_1 is cyclohexyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 58: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 1, X-Y is -CH=CH-, Z is -SO_2-, R_1 is cyclohexyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 59: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 0, X-Y is -CH_2CH_2-, Z is -SO_2-, R_1 is cyclohexyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 60: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 1, X-Y is -CH_2CH_2-, Z is -SO_2-, R_1 is cyclohexyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 61: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 0, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is 1-methyl-butyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 62: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 1, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is 1-methyl-butyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 63: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 0, X-Y is -CH_2CH_2-, Z is -C(=O)-, R_1 is 1-methyl-butyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 64: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 1, X-Y is -CH_2CH_2-, Z is -C(=O)-, R_1 is 1-methyl-butyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 65: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 0, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is 1-methyl-butyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 66: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 1, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is 1-methyl-butyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 67: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 0, X-Y is -CH_2CH_2-, Z is -C(=S)-, R_1 is 1-methyl-butyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 68: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 1, X-Y is -CH_2CH_2-, Z is -C(=S)-, R_1 is 1-methyl-butyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 69: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 0, X-Y is -CH=CH-, Z is -SO_2-, R_1 is 1-methyl-butyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 70: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 1, X-Y is -CH=CH-, Z is -SO_2-, R_1 is 1-methyl-butyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 71: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 0, X-Y is -CH_2CH_2-, Z is -SO_2-, R_1 is 1-methyl-butyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 72: Compounds of the formula (I) in which R_2 is -Z-N(R_6)(R_7), n is 1, X-Y is -CH_2CH_2-, Z is -SO_2-, R_1 is 1-methyl-butyl and the combination of R_6, R_7 and Q for each compound corresponds to a line C.1 to C.390 of Table C.

Table 73: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 0, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 74: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 1, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 75: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 0, X-Y is -CH_2CH_2-, Z is -C(=O)-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 76: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 1, X-Y is -CH_2CH_2-, Z is -C(=O)-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 77: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 0, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 78: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 1, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 79: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 0, X-Y is -CH_2CH_2-, Z is -C(=S)-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 80: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 1, X-Y is -CH_2CH_2-, Z is -C(=S)-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 81: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 0, X-Y is -CH=CH-, Z is -SO_2-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 82: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 1, X-Y is -CH=CH-, Z is -SO_2-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 83: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 0, X-Y is -CH_2CH_2-, Z is -SO_2-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 84: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 1, X-Y is -CH_2CH_2-, Z is -SO_2-, R_1 is sec-butyl or isopropyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 85: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 0, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 86: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 1, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 87: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 0, X-Y is -CH_2CH_2-, Z is -C(=O)-, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 88: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 1, X-Y is $-CH_2CH_2-$, Z is -C(=O)-, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 89: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 0, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 90: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 1, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 91: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 0, X-Y is $-CH_2CH_2-$, Z is -C(=S)-, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 92: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 1, X-Y is $-CH_2CH_2-$, Z is -C(=S)-, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 93: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 0, X-Y is -CH=CH-, Z is $-SO_2-$, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 94: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 1, X-Y is -CH=CH-, Z is $-SO_2-$, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 95: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 0, X-Y is $-CH_2CH_2-$, Z is $-SO_2-$, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 96: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 1, X-Y is $-CH_2CH_2-$, Z is $-SO_2-$, R_1 is cyclohexyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 97: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 0, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 98: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 1, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 99: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 0, X-Y is -CH_2CH_2-, Z is -C(=O)-, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 100: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 1, X-Y is -CH_2CH_2-, Z is -C(=O)-, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 101: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 0, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 102: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 1, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 103: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 0, X-Y is -CH_2CH_2-, Z is -C(=S)-, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 104: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 1, X-Y is -CH_2CH_2-, Z is -C(=S)-, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 105: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 0, X-Y is -CH=CH-, Z is -SO_2-, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 106: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 1, X-Y is -CH=CH-, Z is -SO_2-, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 107: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 0, X-Y is -CH_2CH_2-, Z is -SO_2-, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 108: Compounds of the formula (I) in which R_2 is R_3-Z-, n is 1, X-Y is -CH_2CH_2-, Z is -SO_2-, R_1 is 1-methyl-butyl and the combination of R_3 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 109: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 110: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 111: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is $-CH_2CH_2-$, Z is -C(=O)-, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 112: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is $-CH_2CH_2-$, Z is -C(=O)-, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 113: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 114: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 115: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is $-CH_2CH_2-$, Z is -C(=S)-, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 116: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is $-CH_2CH_2-$, Z is -C(=S)-, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 117: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is -CH=CH-, Z is $-SO_2-$, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 118: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is -CH=CH-, Z is $-SO_2-$, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 119: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is $-CH_2CH_2-$, Z is $-SO_2-$, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 120: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is $-CH_2CH_2-$, Z is $-SO_2-$, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 121: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 122: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 123: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is $-CH_2CH_2-$, Z is -C(=O)-, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 124: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is $-CH_2CH_2-$, Z is -C(=O)-, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 125: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 126: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 127: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is $-CH_2CH_2-$, Z is -C(=S)-, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 128: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is $-CH_2CH_2-$, Z is -C(=S)-, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 129: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is -CH=CH-, Z is $-SO_2-$, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 130: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is -CH=CH-, Z is $-SO_2-$, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 131: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is $-CH_2CH_2-$, Z is $-SO_2-$, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 132: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is $-CH_2CH_2-$, Z is $-SO_2-$, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 133: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 134: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 135: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is $-CH_2CH_2-$, Z is -C(=O)-, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 136: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is $-CH_2CH_2-$, Z is -C(=O)-, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 137: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 138: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 139: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is $-CH_2CH_2-$, Z is -C(=S)-, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 140: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is $-CH_2CH_2-$, Z is -C(=S)-, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 141: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is -CH=CH-, Z is $-SO_2-$, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 142: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is -CH=CH-, Z is $-SO_2-$, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 143: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is $-CH_2CH_2-$, Z is $-SO_2-$, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 144: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is $-CH_2CH_2-$, Z is $-SO_2-$, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line B.1 to B.180 of Table B.

Table 145: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 146: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 147: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is $-CH_2CH_2-$, Z is -C(=O)-, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 148: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is $-CH_2CH_2-$, Z is -C(=O)-, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 149: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 150: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 151: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is $-CH_2CH_2-$, Z is -C(=S)-, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 152: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is $-CH_2CH_2-$, Z is -C(=S)-, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 153: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is -CH=CH-, Z is $-SO_2-$, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 154: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is -CH=CH-, Z is $-SO_2-$, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 155: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is $-CH_2CH_2-$, Z is $-SO_2-$, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 156: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is $-CH_2CH_2-$, Z is $-SO_2-$, R_1 is sec-butyl or isopropyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 157: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 158: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 159: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is $-CH_2CH_2-$, Z is -C(=O)-, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 160: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is $-CH_2CH_2-$, Z is -C(=O)-, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 161: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 162: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 163: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is $-CH_2CH_2-$, Z is -C(=S)-, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 164: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is $-CH_2CH_2-$, Z is -C(=S)-, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 165: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is -CH=CH-, Z is $-SO_2-$, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 166: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is -CH=CH-, Z is $-SO_2-$, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 167: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is $-CH_2CH_2-$, Z is $-SO_2-$, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 168: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is $-CH_2CH_2-$, Z is $-SO_2-$, R_1 is cyclohexyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 169: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 170: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is -CH=CH-, Z is -C(=O)-, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 171: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is $-CH_2CH_2-$, Z is -C(=O)-, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 172: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is $-CH_2CH_2-$, Z is -C(=O)-, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 173: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 174: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is -CH=CH-, Z is -C(=S)-, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 175: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is $-CH_2CH_2-$, Z is -C(=S)-, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 176: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is $-CH_2CH_2-$, Z is -C(=S)-, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 177: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is -CH=CH-, Z is $-SO_2-$, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 178: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is -CH=CH-, Z is $-SO_2-$, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 179: Compounds of the formula (I) in which R_2 is R_4, n is 0, X-Y is $-CH_2CH_2-$, Z is $-SO_2-$, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Table 180: Compounds of the formula (I) in which R_2 is R_4, n is 1, X-Y is $-CH_2CH_2-$, Z is $-SO_2-$, R_1 is 1-methyl-butyl and the combination of R_4 and Q for each compound corresponds to a line D.1 to D.10 of Table D.

Formulation examples for use in crop protection (% = per cent by weight)

Example F1: Emulsion concentrates	a)	b)	c)
Active compound25% 40% 50%			
Calcium dodecylbenzenesulphonate	5%	8%	6%
Castor oil polyethylene glycol ether (36 mol of EO)	5%	-	-
Tributylphenol polyethylene glycol ether (30 mol of EO)	-	12%	4%
Cyclohexanone	-	15%	20%
Xylene mixture	65%	25%	20%

Mixing of finely ground active compound and additives gives an emulsion concentrate which, by dilution with water, affords emulsions of the desired concentration.

Example F2: Solutions	a)	b)	c)	d)
active ingredient	80%	10%	5%	95%
ethylene glycol monomethyl ether	-	20%	-	-
polyethylene glycol (MW 400)	-	70%	-	-
N-methylpyrrolid-2-one	20%	-	-	-
epoxidised coconut oil	-	-	1%	5%
petroleum ether (boiling range: 160-190°)	-	-	94%	-

Mixing of finely ground active compound and additives gives a solution suitable for use in the form of microdrops.

Example F3: Granules	a)	b)	c)	d)
Active compound	5%	10%	8%	21%
Kaolin	94%	-	79%	54%
Finely divided silicic acid	1%	-	13%	7%
Attapulgite	-	90%	-	18%

The active compound is dissolved in dichloromethane, the solution is sprayed onto the mixture of carriers and the solvent is evaporated under reduced pressure.

Example F4: Wettable powder	a)	b)	c)
Active compound	25%	50%	75%
Sodium lignosulphonate	5%	5%	-
Sodium lauryl sulphate	3%	-	5%
Sodium diisobutylnaphthalene sulphonate	-	6%	10%
Octylphenol polyethylene glycol ether (7-8 mol of EO)	-	2%	-
Finely divided silicic acid	5%	10%	10%
Kaolin	62%	27%	-

Active compound and additives are mixed and the mixture is ground in a suitable mill. This gives wettable powders which can be diluted with water to give suspensions of the desired concentration.

Example F5: Emulsion concentrate	
Active compound	10%
Octylphenol polyethylene glycol ether (4-5 mol of EO)	3%
Calcium dodecylbenzenesulphonate	3%
Castor oil polyethylene glycol ether (36 mol of EO)	4%
Cyclohexanone	30%
Xylene mixture	50%

Mixing of finely ground active compound and additives gives an emulsion concentrate which, by dilution with water, affords emulsions of the desired concentration.

Example F6: Extruder granules

Active compound	10%
Sodium lignosulphonate	2%
Carboxymethylcellulose	1%
Kaolin	87%

Active compound and additives are mixed, the mixture is ground, moistened with water, extruded and granulated, and the granules are dried in a stream of air.

Example 7: Coated granules

Active compound	3%
Polyethylene glycol (MW 200)	3%
Kaolin	94%

In a mixer, the finely ground active compound is applied uniformly to the kaolin which has been moistened with polyethylene glycol. This gives dust-free coated granules.

Example F8: Suspension concentrate

Active compound	40%
Ethylene glycol	10%
Nonylphenol polyethylene glycol ether (15 mol of EO)	6%
Sodium lignosulphonate	10%
Carboxymethylcellulose	1%
Aqueous formaldehyde solution (37%)	0.2%
Aqueous silicone oil emulsion (75%)	0.8%
Water	32%

Mixing of finely ground active compound and additives gives a suspension concentrate which, by dilution with water, affords suspensions of the desired concentration.

Biological examples:

Example B1: Activity against Spodoptera littoralis

Young soya bean plants are sprayed with an aqueous emulsion spray liquor which comprises 12.5 ppm of active compound, and, after the spray coating has dried on, populated with 10 caterpillars of the first stage of Spodoptera littoralis and introduced into a plastic container. 3 days later, the reduction in the population in per cent and the reduction in

the feeding damage in per cent (% activity) are determined by comparing the number of dead caterpillars and the feeding damage between the treated and the untreated plants.

In this test, the compounds of the Tables A1 to A8 and Tables 1 to 216 show good activity. Thus, in particular the compounds A1.1 to A8.9 are more than 80 % effective.

Example B2: Activity against Spodoptera littoralis, systemic:

Maize seedlings are placed into the test solution which comprises 12.5 ppm of active compound. After 6 days, the leaves are cut off, placed onto moist filter paper in a Petri dish and populated with 12 to 15 Spodoptera littoralis larvae of the L_1 stage. 4 days later, the reduction of the population in per cent (% activity) is determined by comparing the number of dead caterpillars between the treated and the untreated plants.

In this test, the compounds of the Tables A1 to A8 and Tables 1 to 216 show good activity. Thus, in particular the compounds A1.1 to A8.9 are more than 80 % effective.

Example B3: Activity against Heliothis virescens

30-35 0- to 24-hour-old eggs of Heliothis virescens are placed onto filter paper in a Petri dish on a layer of synthetic feed. 0.8 ml of the test solution which comprises 12.5 ppm of active compound is then pipetted onto the filter papers. Evaluation is carried out after 6 days. The reduction in the population in per cent (% activity) is determined by comparing the number of dead eggs and larvae on the treated and the untreated filter papers.

In this test, the compounds of the Tables A1 to A8 and Tables 1 to 216 show good activity. Thus, in particular the compounds A1.1 to A8.9 are more than 80 % effective.

Example B4: Activity against Plutella xylostella caterpillars

Young cabbage plants are sprayed with an aqueous emulsion spray liquor which comprises 12.5 ppm of the active compound. After the spray coating has dried on, the cabbage plants are populated with 10 caterpillars of the first stage of Plutella xylostella and introduced into a plastic container. Evaluation is carried out after 3 days. The reduction in the population in per cent and the reduction in the feeding damage in per cent (% activity) are determined by comparing the number of dead caterpillars and the feeding damage on the treated and the untreated plants.

In this test, the compounds of the Tables A1 to A8 and Tables 1 to 216 show good activity. Thus, in particular the compounds A1.1 to A8.9 are more than 80 % effective.

Example B5: Activity against Frankliniella occidentalis

In Petri dishes, discs of the leaves of beans are placed onto agar and sprayed with test solution which comprises 12.5 ppm of active compound in a spraying chamber. The leaves are then populated with a mixed population of Frankliniella occidentalis. Evaluation is carried out after 10 days. The reduction in per cent (% activity) is determined by comparing the population on the treated leaves with that of the untreated leaves.

In this test, the compounds of the Tables A1 to A8 and Tables 1 to 216 show good activity. Thus, in particular the compounds A1.1 to A8.9 are more than 80 % effective.

Example B6: Activity against Diabrotica balteata

Maize seedlings are sprayed with an aqueous emulsion spray liquor which comprises 12.5 ppm of active compound and, after the spray coating has dried on, populated with 10 larvae of the second stage of Diabrotica balteata and then introduced into a plastic container. After 6 days, the reduction in the population in per cent (% activity) is determined by comparing the dead larvae between the treated and the untreated plants.

In this test, the compounds of the Tables A1 to A8 and Tables 1 to 216 show good activity. Thus, in particular the compounds A1.1 to A8.9 are more than 80 % effective.

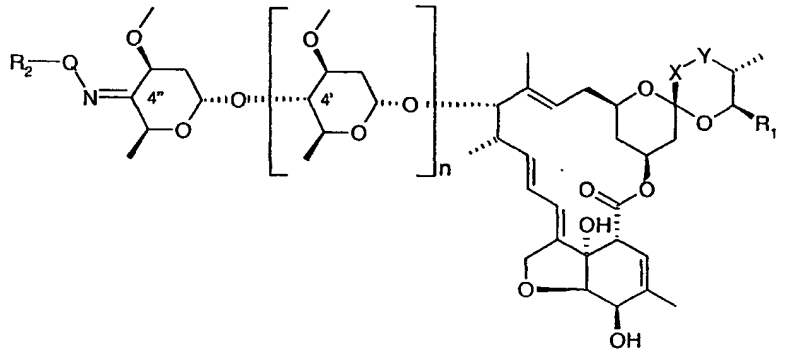
Example B7: Activity against Tetranychus urticae

Young bean plants are populated with a mixed population of Tetranychus urticae and, after 1 day, sprayed with an aqueous emulsion spray liquor which comprises 12.5 ppm of active compound, incubated at 25°C for 6 days and then evaluated. The reduction in the population in per cent (% activity) is determined by comparing the number of dead eggs, larvae and adults on the treated and on the untreated plants.

In this test, the compounds of the Tables A1 to A8 and Tables 1 to 216 show good activity. Thus, in particular the compounds A1.1 to A8.9 are more than 80 % effective.

WHAT IS CLAIMED IS:

1. A compound of the formula



in which

n is 0 or 1;

X-Y is -CH=CH- or $-CH_2-CH_2-$;

R_1 is C_1-C_{12}alkyl, C_3-C_8cycloalkyl or C_2-C_{12}alkenyl; and

R_2 is R_3-Z-, R_3-O-Z-, R_4 or -Z-N(R_6)(R_7);

Z is -C(=O)-, -C(=S)- or $-SO_2-$;

Q is O or -N-R_5;

R_3 and R_4 are H, C_1-C_{12}alkyl, C_2-C_{12}alkenyl, C_2-C_{12}alkynyl, C_3-C_{12}cycloalkyl, C_5-C_{12}cycloalkenyl, aryl or heterocyclyl, wherein the alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl and heterocyclyl radicals may be - depending on the substitution possibilities - unsubstituted or mono- to pentasubstituted; either

R_5 is H, C_1-C_8alkyl, hydroxy-C_1-C_8alkyl, C_3-C_8cycloalkyl, C_2-C_8alkenyl, C_2-C_8alkynyl, phenyl, benzyl, -C(=O)-R_9, or $-CH_2$-C(=O)-R_9; or,

when Q is NR_5 and R_2 is R_4,

R_4 and R_5 together are a three- to seven-membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted; or a three- to seven-membered alkylene- or alkenylene-bridge, which are unsubstituted or mono- to tri-substituted, and in which one or two of the methylene groups of the bridge are replaced by O, NR_8, S, S(=O) or SO_2;

R_6 and R_7 are, independently from each other, H, unsubstituted or mono- to pentasubstituted C_1-C_{12}alkyl, unsubstituted or mono- to pentasubstituted C_2-C_{12}alkenyl, unsubstituted or mono- to pentasubstituted C_2-C_{12}alkynyl, unsubstituted or mono- to pentasubstituted C_3-C_{12}-cycloalkyl, unsubstituted or mono- to pentasubstituted C_5-C_{12}cycloalkenyl, unsubstituted or mono- to pentasubstituted aryl, or unsubstituted or mono- to pentasubstituted heterocyclyl; or

R_6 and R_7 together are a three- to seven-membered alkylene- or alkenylene-bridge, which are unsubstituted or mono- to tri-substituted; or a three- to seven-membered alkylene- or alkenylene-bridge, which are unsubstituted or mono- to tri-substituted, and in which one or two of the methylene groups of the bridge are replaced by O, NR_8, S, S(=O) or SO_2;

R_8 is H, C_1-C_8alkyl, hydroxy-C_1-C_8alkyl, C_3-C_8cycloalkyl, C_2-C_8alkenyl, C_2-C_8alkynyl, phenyl, benzyl, -C(=O)R_9 or -CH_2-C(=O)-R_9;

in which the substituents of the alkyl, alkenyl, alkynyl, alkylene, alkenylene, cycloalkyl, cycloalkenyl, aryl and heterocyclyl radicals mentioned under R_2, R_3, R_4, R_5, R_6, R_7 and R_8 are selected from the group consisting of OH, =O, SH, =S, -N_3, halogen, halo-C_1-C_2alkyl, CN, SCN, NO_2, trialkylsilyl, C_1-C_{12}alkyl, C_1-C_{12}-haloalkyl, C_2-C_8alkenyl, C_2-C_6haloalkenyl, C_2-C_8alkynyl, C_3-C_8cycloalkyl that is unsubstituted or substituted by one to three methyl groups, norbornylenyl, C_3-C_8halocycloalkyl, C_1-C_{12}alkoxy, C_1-C_{12}alkoxy-C_1-C_{12}alkoxy, C_1-C_{12}haloalkoxy, C_3-C_8cycloalkoxy, C_1-C_{12}alkylthio, C_3-C_8cycloalkylthio, C_1-C_{12}-haloalkylthio, C_1-C_{12}alkylsulfinyl, C_3-C_8cycloalkylsulfinyl, C_1-C_{12}haloalkylsulfinyl, C_3-C_8halocycloalkylsulfinyl, C_1-C_{12}alkylsulfonyl, C_3-C_8cycloalkylsulfonyl, C_1-C_{12}haloalkylsulfonyl, C_3-C_8halocycloalkylsulfonyl, -$N(R_{12})_2$ wherein the two R_{12} are independent of each other, -C(=O)R_9, -O-C(=O)R_{10}, -NHC(=O)R_9, -S-C(=S)R_{10}, -P(=O)(OC_1-C_6alkyl)$_2$, -S(=O)$_2R_{13}$, -NH-S(=O)$_2R_{13}$, -OC(=O)-C_1-C_6alkyl-S(=O)$_2R_{13}$, aryl, benzyl, heterocyclyl, aryloxy, benzyloxy, heterocyclyloxy, arylthio, benzylthio and heterocyclylthio; wherein the aryl, heterocyclyl, aryloxy, benzyloxy, heterocyclyloxy, arylthio, benzylthio or heterocyclylthio radicals are unsubstituted or, depending on the possibilities of substitution on the ring, mono- to pentasubstituted by substituents selected from the group consisting of OH, halogen, CN, NO_2, C_1-C_{12}alkyl, C_3-C_8cycloalkyl, C_1-C_{12}haloalkyl, C_1-C_{12}alkoxy, C_1-C_{12}haloalkoxy, C_1-C_{12}alkylthio, C_1-C_{12}haloalkylthio, C_1-C_6alkoxy-C_1-C_6alkyl, dimethylamino-C_1-C_6alkoxy, C_2-C_8alkenyl, C_2-C_8alkynyl, phenyl, phenoxy, phenyl-C_1-C_6alkyl, methylenedioxy, -C(=O)R_9, -O-C(=O)-R_{10}, -NH-C(=O)R_{10}, -$N(R_{12})_2$ wherein the two R_{12} are independent of each other, C_1-C_6alkylsulfinyl, C_3-C_8cycloalkylsulfinyl, C_1-C_6haloalkylsulfinyl, C_3-C_8halocycloalkylsulfinyl,

C_1-C_6alkylsulfonyl, C_3-C_8cycloalkylsulfonyl, C_1-C_6haloalkylsulfonyl and C_3-C_8halocycloalkyl-sulfonyl;

R_9 is H, OH, SH, -N(R_{12})$_2$ wherein the two R_{12} are independent of each other, C_1-C_{24}alkyl, C_2-C_{12}alkenyl, C_1-C_8hydroxyalkyl, C_1-C_{12}haloalkyl, C_1-C_{12}alkoxy, C_1-C_{12}halo-alkoxy, C_1-C_6alkoxy-C_1-C_6alkyl, C_1-C_6alkoxy-C_1-C_6alkoxy, C_1-C_6alkoxy-C_1-C_6alkoxy-C_1-C_6alkyl, C_1-C_{12}alkylthio, C_2-C_8alkenyloxy, C_3-C_8alkynyloxy, -NH-C_1-C_6alkyl-C(=O)-R_{11}, -N(C_1-C_6alkyl)-C_1-C_6alkyl-C(=O)-R_{11}, -O-C_1-C_2alkyl-C(=O)R_{11}, -C_1-C_6alkyl-S(=O)$_2R_{13}$, aryl, benzyl, heterocyclyl, aryloxy, benzyloxy, heterocyclyloxy; or aryl, benzyl, heterocyclyl, aryl-oxy, benzyloxy or heterocyclyloxy, which are unsubstituted or mono- to trisubstituted in the ring independently of one another by halogen, nitro, C_1-C_6alkyl, C_1-C_6alkoxy, C_1-C_6haloalkyl or C_1-C_6haloalkoxy;

R_{10} is H, C_1-C_{24}alkyl, C_1-C_{12}haloalkyl, C_1-C_{12}hydroxyalkyl, C_2-C_8alkenyl, C_2-C_8alkynyl, C_1-C_6alkoxy-C_1-C_6alkyl, -N(R_{12})$_2$ wherein the two R_{12} are independent of each other, -C_1-C_6alkyl-C(=O)R_{12}, -C_1-C_6alkyl-S(=O)$_2R_{13}$, aryl, benzyl, heterocyclyl; or aryl, benzyl or heterocyclyl which, depending on the possibilities of substitution on the ring, are mono- to trisubstituted by substituents selected from the group consisting of OH, halogen, CN, NO_2, C_1-C_{12}alkyl, C_1-C_{12}haloalkyl, C_1-C_{12}alkoxy, C_1-C_{12}haloalkoxy, C_1-C_{12}alkylthio and C_1-C_{12}halo-alkylthio;

R_{11} is H, OH, C_1-C_{24}alkyl that is optionally subsituted with OH, or -S(=O)$_2$-C_1-C_6alkyl, C_2-C_{12}alkenyl, C_2-C_{12}alkynyl, C_1-C_{12}alkoxy, C_1-C_6 alkoxy-C_1-C_6alkyl, C_1-C_6alkoxy-C_1-C_6alkoxy, C_2-C_8alkenyloxy, aryl, aryloxy, benzyloxy, heterocyclyl, heterocyclyloxy or -N(R_{12})$_2$, wherein the two R_{12} are independent of each other;

R_{12} H, C_1-C_6alkyl, which is optionally substituted with one to five substituents selected from the group consisting of OH, =O, halogen, C_1-C_6alkoxy, hydroxy and cyano; C_1-C_8-cyclo-alkyl, aryl, benzyl, heteroaryl; or aryl, benzyl or heteroaryl, which, depending on the possi-bilities of substitution on the ring, are mono- to trisubstituted by substituents selected from the group consisting of OH, halogen, CN, NO_2, C_1-C_{12}alkyl, C_1-C_{12}haloalkyl, C_1-C_{12}alkoxy, C_1-C_{12}haloalkoxy, C_1-C_{12}alkylthio and C_1-C_{12}haloalkylthio; or the two R_{12} together are a three- to seven-membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted; or a three- to seven-membered alkylene- or alkenylene-bridge, which is unsubstituted or mono- to tri-substituted, and in which one of the methylene groups of the bridge is replaced by O, NR_8, S, S(=O) or SO_2;

R_{13} is H, C_1-C_6alkyl that is optionally substituted with one to five substituents selected from the group consisting of hydroxy, halogen, =O, C_1-C_6alkoxy, hydroxy and cyano; aryl, benzyl, heteroaryl; or aryl, benzyl or heteroaryl, which, depending on the possibilities of substitution on the ring, are mono- to trisubstituted by substituents selected from the group consisting of OH, =O, halogen, CN, NO_2, C_1-C_{12}alkyl, C_1-C_{12}haloalkyl, C_1-C_{12}alkoxy, C_1-C_{12}haloalkoxy, C_1-C_{12}alkylthio and C_1-C_{12}haloalkylthio;

or, if appropriate, an E/Z isomer, E/Z isomer mixture and/or tautomer thereof, in each case in free form or in salt form.

2. A pesticide which contains at least one compound of the formula (I) as described in claim 1 as active compound and at least one auxiliary.

3. A method for controlling pests wherein a composition as described in claim 2 is applied to the pests or their habitat.

4. A process for preparing a composition as described in claim 2 which contains at least one auxiliary, wherein the active compound is mixed intimately and/or ground with the auxiliary(s).

5. The use of a compound of the formula (I) as described in claim 1 for preparing a composition as described in claim 2.

6. The use of a composition as described in claim 2 for controlling pests.

7. A method according to claim 3 for protecting plant propagation material, wherein the propagation material or the location where the propagation material is planted is treated.